Advanced Role Swap Utility
User Guide

Managing Availability

Across the Enterprise

VISION® SOLUTIONS

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Advanced Role Swap Utility User Guide

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What's New or Changed in This Release

Compatibility

The Advanced Role Swap Utility is compatible for installation with VSEE 8.1/4.1 SR-1 product as follows:

- SR-1 ASP02 through SR-1 ASP05, and does not require that a patch be applied
- SR-1 ASP06 or higher, and requires that a compatibility patch be applied

The Advanced Role Swap Utility is compatible for installation with VSEE 8.2/4.2 product as follows and all of the following require that a compatibility patch be applied:

- VSEE 8.2/4.2 GA or GA plus ASP01 through ASP03
- VSEE 8.2/4.2 SR-1 (with an OS of V5R2 or V5R3)
- VSEE 8.2/4.2 SR-1 ASP01 (with an OS of V5R2, V5R3, or V5R4)
- VSEE 8.2/4.2 SR-2 GA or GA plus ASP01 through ASP15

If you have a current installation of the Advanced Role Swap Utility that is not at a minimum v1.0, you must complete the upgrade procedures in the *Advanced Role Swap Utility User Guide* prior to applying any patches.

NOTE

See the current version of Technical Bulletin #TBVSI0030 Advanced Role Swap Utility Installation/Upgrade Matrix to identify the appropriate patch to apply.

IMPORTANT

Starting with releases VSEE 8.1/4.1 SR-1 ASP10 and ORION v1.1 SR-1 ASP10, and VSEE 8.2/4.2 SR-2 and ORION v1.2 SR-2, all Product Announcements will include information regarding Advanced Role Swap Utility compatibility. The Product Announcement should be consulted to confirm what patches, if any, need to be applied.

Function Key Update

The function keys in the Advanced Role Swap Utility were changed as follows:

Function Key	Description
F18	OMSMSGQ– Displays the OMS/400 message queue.
F19	ODSMSGQ–Displays the ODS/400 message queue.
F20	OMS400–Displays the main OMS/400 screen.
F21	ODS400–Displays the main ODS/400 screen.
F22	About–Displays the current version of the Advanced Role Swap Utility.
F24	WRKACTJOB–Displays the Work with Active Jobs screen.

Overview

1

The Advanced Role Swap Utility was created to develop a standard set of procedures and programs to execute planned and unplanned role swaps. This chapter contains the following:

- A description of unplanned and planned role swaps (see "Role Swaps" on page 1)
- Information on planning a role swap (see "Planning a Role Swap" on page 3)

Role Swaps

Both planned and unplanned role swaps can be broken down into a series of steps. These steps can serve as a high level guide for performing a planned or unplanned role swap of a mirrored environment and represent the structure of the Advanced Role Swap Utility. The steps are not inclusive and may not take into consideration everything required to role swap your environment. See the following for more information:

- See "Planned Role Swaps" on page 1 for information on planned role swaps.
- See "Unplanned Role Swaps" on page 2 for information on unplanned role swaps.

Planned Role Swaps

In a planned role swap, both the source and target systems are available and functional. This role swap is used when there is a need to take the original source system and keep the applications running and available to the business (for example, to upgrade the source system's hardware or operating system, or if your standard operating procedures include switching the production workload between the source and target on a scheduled interval).

Planned role swaps consist of the following steps:

1. Execute a pre-role swap check of your mirroring environment to determine its readiness for a role swap. The pre-role swap check consists of a number of checks on both the source and target to identify and resolve issues that may cause the swap to be aborted or lengthen the time it takes to complete. This check can be run hours or days prior to the scheduled role swap and can be run multiple times (see "Performing a Preliminary Pre-Role Swap Check" on page 27 for more information).

2. End or stop all processes on the source server that change data or objects being mirrored to the target. This includes ending all applications and interfaces, as well as users access to the system. In addition, you must end all applications on the target and users access to the mirrored environment (see "Restricting the Mirrored Environment" on page 34).

3. Swap or reverse the roles of the source and target system (the source becomes the target and the target becomes the new source). In addition to swapping roles, this step also includes moving hardware devices that must be manually switched between the source and target (see "Performing the Role Swap" on page 36).

4. Start all applications and subsystems on the new source, and logically switch the users to point to the new production system so that users can log in and resume working (see "Starting Applications on the New Source" on page 44). In addition, start any subsystems or applications that are required to be running on the target.

Unplanned Role Swaps

In an unplanned role swap, an unexpected outage occurs on the source system and the production work and users must be switched to the target system to allow the business to continue.

Unplanned role swaps consist of the following steps:

1. On the target or backup server, end user access to the target and any applications that access the mirrored environment on the target (see "Restricting the Mirrored Environment" on page 34).

2. After the OMS/400router and apply jobs have processed all transactions on the target, swap or reverse the roles of the source and target system (the source becomes the target and the target becomes the new source). In addition to swapping roles, this step also includes moving hardware devices that must be manually switched between the source and target (see "Performing the Role Swap" on page 36).

3. Depending on your applications and their resiliency during a failure, your application programming staff may need to assess the state of the databases prior to letting users log in to the new source and commence work. This

process may include running a series of programs over the database to identify incomplete transactions or identifying production jobs that were running at the time of failure. The process will vary according to your applications ability to recover from in-flight transactions and lost or incomplete batch jobs. Additional steps may be required prior to allowing users back on the system.

4. Start all applications and subsystems on the new source, and logically switch the users to point to the new production system so that users can resume working (see "Starting Applications on the New Source" on page 44).

5. Once the original source system becomes available, it must be role swapped to the target system so that mirroring is started between the new source and target system. All journaled changes from the source are sent across and applied on the new target. Once the target is current and all changes have been applied, a planned role swap can be scheduled to return the systems to their original status.

Planning a Role Swap

To develop role swap capabilities, you must perform a series of planned role swap tests. These tests will be spread out over a period of weeks or months, depending on the availability of downtime on the source and target systems. The number of tests varies and is based on customer change management procedures, the availability of resources to perform application testing, and customer application testing requirements. Although the time and effort may vary, testing generally conforms to the following steps:

1. Test the role swap procedures and programs. This focuses on the mechanics of the role swap: finding and starting subsystems and applications, switching users and interfaces to the back up system, and role swapping the mirrored environment so that it mirrors in the opposite direction. The Vision Administrator and the Vision Consultant are involved in this test.

2. Role swap to the backup server to do some limited application testing. This testing may include starting all production applications, signing on to each system and walking through the key menus or functions, and querying the databases to compare the source and target data. However, no data is modified in this step. The Vision Administrator, Vision Consultant, and operations and application development are involved in this step.

3. Perform a complete application test, which can include updating or modifying data, mirroring data back in the reverse directions or comparing reports run on both systems. The Vision Administrator and operations perform the role swap and application development verifies the data and applications on the backup server.

Vision Solutions recommends that you do periodic role swap tests to keep the staff skill levels current and to identify any changes to the environment, such as new applications that are not currently being mirrored. These periodic role swap tests should be done at least once a year, but we strongly encourage you to do it more often.

When planning and completing your role swap testing, consider the following:

- Determine the user profile that will execute the role swap. This user profile must have security officer authority. We recommend that you create a separate user profile to execute the role swap that includes a job description that ensures the proper working environment for the user profile. In addition, we recommend that you duplicate the QSECOFR user profile to the new profile ROLESWAP and use the job description ROLESWAP in the tools library.
- Determine how to connect to the source and target system during the role swap, either by telnet to a static IP address or using the system console. If using telnet, ensure that your job will be active in a subsystem that does not end during the role swap. We recommend that you transfer your job or use a device description that is configured in the QCTL subsystem. This ensures that the job remains active throughout the role swap process.
- Review and update the standard operating procedures for your environment (for example, the contact list, mirroring configuration, and other custom procedures and programs in your environment). It is very important to verify that all required libraries and objects are configured to VSEE prior to the role swap.
- When signing off the system after the role swap, execute the command "SIGNOFF *LIST" to produce a job log. The job log may help identify issues.
- Review the target system PTF levels and any other system attributes.
- Plan to continue save activities after the role swap. For example, move tape drives or update save logs to continue the save operations for the new source and target system.
- Coordinate role swap tasks with the network administrators. For example, in a LAN environment, the ARP cache for routers may need to be cleared after a role swap to broadcast the new MAC address to which the user IP is now associated.
- Throughout the role swap process, take notes to review after the completion of the role swap. The notes will help identify any required changes.

Getting Started

2

This chapter covers the basics you need to install and prepare for the Advanced Role Swap Utility:

- "System Requirements" on page 5
- "Loading and Mirroring the VSIARS Library" on page 5
- "Configuring an Environment" on page 12
- "Using the Advanced Role Swap Utility" on page 18

System Requirements

To run the Advanced Role Swap Utility, you must meet the following requirements:

- OS/400 V5R1 or higher
- Both the source and target systems must be at the same version (VSEE 8.1/4.1 and ORION v. 1.1 or VSEE 8.2/4.2 and ORION v1.2).
- The Advanced Role Swap Utility can only be used in a one-to-one environment (one source system to one target system).

Note the following:

- The Advanced Role Swap Utility does not support iASP environments.
- The Advanced Role Swap Utility link must be in the active environment.

Loading and Mirroring the VSIARS Library

The Advanced Role Swap Utility is stored in the VSIARS library. You may receive the VSIARS library on a CD or as a zip file downloaded from an FTP site. See the following for information on how to load the VSIARS library:

- See "Loading from CD" on page 6 to load the VSIARS library from a CD.
- See "Loading from the CustomerCare Website" on page 7 to load the VSIARS library from an FTP site.

NOTE

The procedures and information in this manual refer to the VSIARS library. If you place the objects from the VSIARS library in another library, refer to the library to which you copied the objects in the VSIARS library whenever the VSIARS library is referenced in this manual.

Loading from CD

The VSIARS library is contained in a save file named ARSSAVF01 on the *Advanced Role Swap Utility* CD.

To load the VSIARS library from CD:

1. Insert the CD into your CDROM drive and copy ARSSAVF01 to the local drive on your PC.
2. On the source iSeries system, use the following command to create a Save File using the exact name as the Save Files that you will upload.

   ```
   CRTSAVF OMS400/ARSSAVF01
   ```

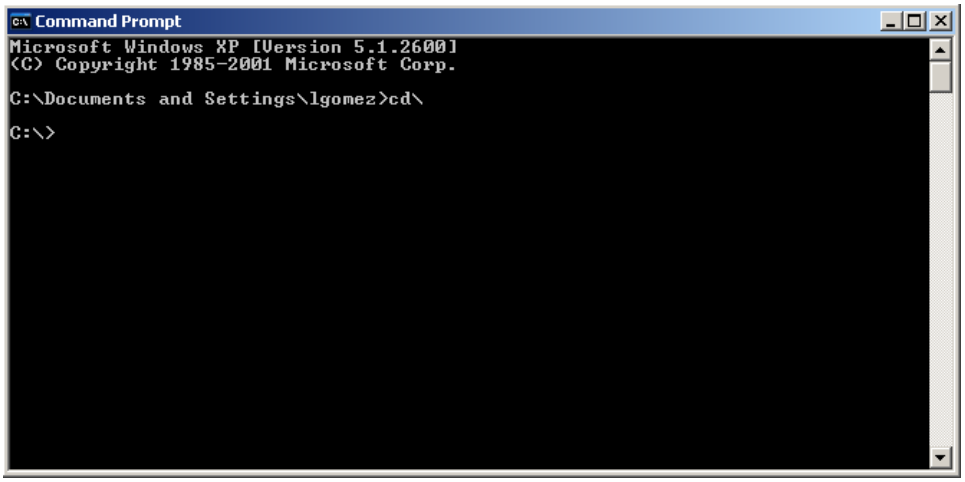
3. Create a VSIARS library on the target system.

   ```
   CRTLIB LIB(VSIARS)
   ```

4. On your desktop, select the following:

   Start > All Programs > Accessories > Command Prompt

   The Command Prompt screen is displayed.



5. At the C:\ prompt, enter the following when prompted. (C:\ is used in the example, but you can select the directory where you place the save file.

Also, the example below assumes that you complete the ftp from C:\ root.) Login using your iSeries user name and password.

```
C:\>ftp <systemname>
Connected to systemname
220-QTCP at systemname
220 Connection will close if idle more than 5 min-
utes.
User <systemname:<none>>: <username>
331 Enter password.
Password:xxxxxx
230 username logged on.
ftp>cd OMS400
250 "OMS400" is current library.
ftp>bin
200 Representation type is binary IMAGE.
Local directory now C:\
ftp>put <ARSSAVF01>
```

6. When the upload process is completed for the save file, enter quit in the Command Prompt screen.
7. Close the Command Prompt screen.
8. Using the following commands, verify on the iSeries systems that the save file you created in step 2 contains content:

```
DSPSAVF OMS400/ARSSAVF01
```

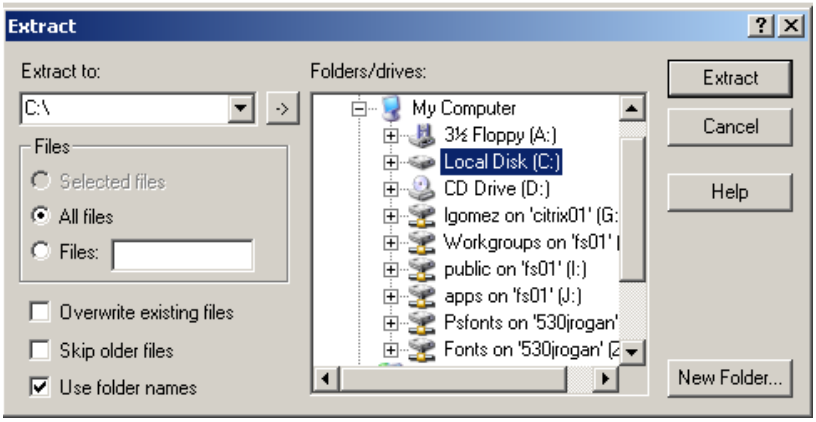
9. Now go to "Installing the Save File" on page 10.

Loading from the CustomerCare Website

The VSIARS library is contained in a save file named ARSSAVF01. Within the save file is the VSIARS distribution library ARSSAVF01. Do the following to extract and download the library:

1. Log in to Vision Solutions' CustomerCare website.
2. Click Product Downloads, then OMS/400.
3. Click the version of OMS/400 that is currently installed:
   - OMS/400 v8.1 SR-1
   - OMS/400 v8.2
   - OMS/400 v8.2 SR-1
4. Click Advanced Role Swap Utility.
5. Click arssavf01.zip.
6. In the File Download dialog box, click Save.

7. Select the location to which you want the contents saved, then click Save.
8. Double-click ARSSAVF01.zip.
9. Select the Extract icon on the toolbar.
10. Select the location to which you want the contents saved, then click Extract.



11. Repeat step 8 through step 10 to extract the save file ARSSAVF01 from ARSSAVF01.zip.
12. On the source iSeries system, use the following command to create a Save File using the exact name as the Save Files that you will upload.

```
CRTSAVF OMS400/ARSSAVF01
```

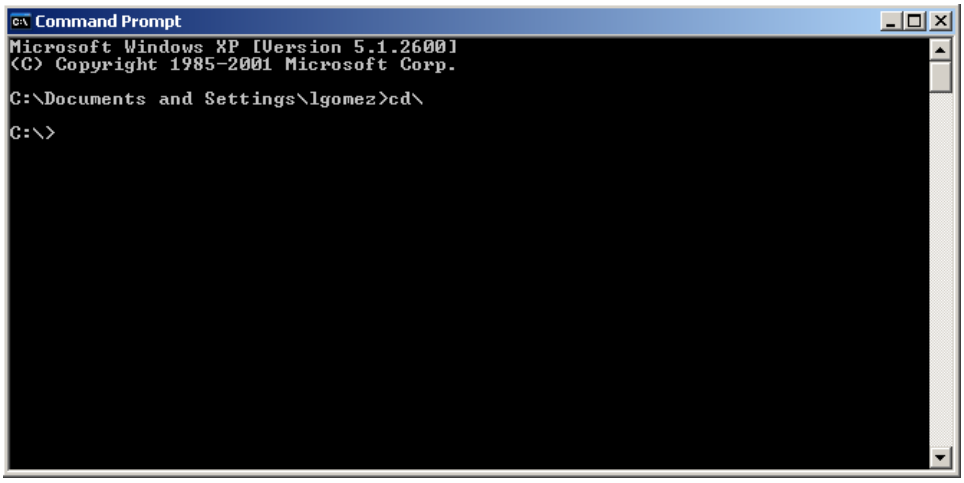
13. Create a VSIARS library on the target system.

```
CRTLIB LIB(VSIARS)
```

14. On your desktop, select the following:

    Start > All Programs > Accessories > Command Prompt

    The Command Prompt screen is displayed.



15. At the C:\ prompt, enter the following when prompted. (C:\ is used in the example, but you can select the directory where you place the save file. Also, the example below assumes that you complete the ftp from C:\ root.) Login using your iSeries user name and password.

```
C:\>ftp <systemname>
Connected to systemname
220-QTCP at systemname
220 Connection will close if idle more than 5 min-
utes.
User <systemname:<none>>: <username>
331 Enter password.
Password:xxxxxx
230 username logged on.
ftp>cd OMS400
250 "OMS400" is current library.
ftp>bin
200 Representation type is binary IMAGE.
ftp>put <ARSSAVF01>
```

16. When the upload process is completed for the save file, enter quit in the Command Prompt screen.

17. Close the Command Prompt screen.

18. Using the following commands, verify on the iSeries systems that the save file you created in step 2 contains content:

```
DSPSAVF OMS400/ARSSAVF01
```

19. Now go to "Installing the Save File" on page 10.

Installing the Save File

Do the following to restore the object contained in the ARSSAVF01 save file to your source system and mirror the objects to the target system.

1. Sign on as QSECOFR (or equivalent).
2. Load the ARSSAVF01 save file on the iSeries in the library of your choice.
3. Restore ARSSAVF01 to the source system:
   - To save it to the VSIARS library:

```
RSTLIB SAVLIB(VSIARS) DEV(*SAVF)
SAVF(OMS400/ARSSAVF01) MBROPT(*ALL)
ALWOBJDIF(*ALL) OUTPUT(*PRINT)
```

   - To save it to a different library:

```
RSTLIB SAVLIB(VSIARS) DEV(*SAVF)
SAVF(OMS400/ARSSAVF01) MBROPT(*ALL)
ALWOBJDIF(*ALL) OUTPUT(*PRINT)
TOLIB (YOURLIB)
```

Upgrading to VSIARS

If you have the VSITOOLS library installed, which is the previous version of the Advanced Role Swap Utility, you must do the following:

NOTE

If you do not have a previous version of the Advanced Role Swap Utility installed, go to "Adding the VSIARS Library to the Replication Environment" on page 11.

1. Determine whether or not the program VSIENDSYS exists.
   - If the program VSIENDSYS exists, copy VSIENDSYS to VSIARS, then change the data area ENDEXTCFG to reference the program VSIENDSYS in the VSIARS library.
   - If the program VSIENDSYS does not exist, copy the exit program ENDUSREXT and any dependent programs into VSIARS from VSITOOLS.

2. Determine whether or not the program VSISTRSYS exists.
   - If the program VSISTRSYS exists, copy VSISTRSYS to VSIARS, then change the data area STREXTCFG to reference the program VSISTRSYS in the VSITOOLS library.
   - If the program VSISTRSYS does not exist, copy the program STRUSREXT and any dependent programs into VSIARS from VSITOOLS.
3. If you permanently added an entry to the user or system library lists in a previous version of the Advanced Role Swap Utility, you must edit, as necessary, any system values or applications that set library lists to ensure that the VSIARS library is above any prior entries for ARS. (For example, if a previous version of the Advanced Role Swap Utility was located in the VSITOOLS library, VSIARS must be above VSITOOLS in the library list of any session accessing the Advanced Role Swap Utility).
4. As part of the upgrade, you must configure your roleswap environment, including link selection, in the new version of the Advanced Role Swap Utility. Environment configurations from previous Advanced Role Swap Utility versions are not automatically copied to the new version (see "Configuring an Environment" on page 12 for more information).

Adding the VSIARS Library to the Replication Environment

Once you know the library in which the Advanced Role Swap Utility will be stored, you must add this library to both the OMS/400 and ODS/400 environments to mirror all changes to the target so that the source and target libraries are identical. In addition, the MTTPWD and USRAPPSTS data areas must be excluded from OMS/400 and omitted from ODS/400 so that End User Applications and Start User Applications on the target work correctly.

The following procedure explains how to mirror a library. (Skip steps 2, 3, and 6 if you are already mirroring VSIARS and are merging the new VSIARS library with an existing VSIARS library.)

NOTE

The VSIARS library must be created on the target system with no objects. Create a new link that mirrors only the VSIARS library.

1. Create the VSIARS library on the target system.
2. On the source system, select an OMS/400 link and add the library name to the PLM. You must exclude the MTTPWD and USRAPPSTS data areas.
3. On the source system, set the PLM monitor action for the library to *SND.

4. On the source system, run the PLM for the link ID and wait for the job to complete.
5. On both the source and target systems, verify that the objects were configured correctly to the OMS/400 link.
6. On the source system, add a select statement to ODS/400 to mirror all objects in the library. You must omit the MTTPWD and USRAPPSTS data areas.
7. On the source system, execute an ODS/400 synch-check for the library. The synch-check process will perform a save/restore of any objects that do not exist on the target system.
8. On the source system, use the ODSSNDOBJ command to send the MTTPWD and USRAPPSTS data areas that were omitted in step 6.
9. Install the appropriate compatibility patch (see *Technical Bulletin TBVSI0030* for more information).

Configuring an Environment

The environment configuration allows you to group OMS/400 link IDs so that they can be processed together as a single entity or a subset of links. Grouping the link IDs is useful if you want to role swap a subset of your links defined to OMS/400 or to identify a set of links on which you want to run a sample synch check when the applications are down.

NOTE

When grouping link IDs, make the link IDs either all source or all target.

If you do not configure an environment, the current environment is set to *NOTCFG. This causes all defined OMS/400 links to be selected.

See the following sections to configure an environment:

- "Adding a New Environment Configuration" on page 13
- "Activating an Environment Configuration" on page 16

Adding a New Environment Configuration

The following procedure explains how to define an environment, select links, and set the current environment.

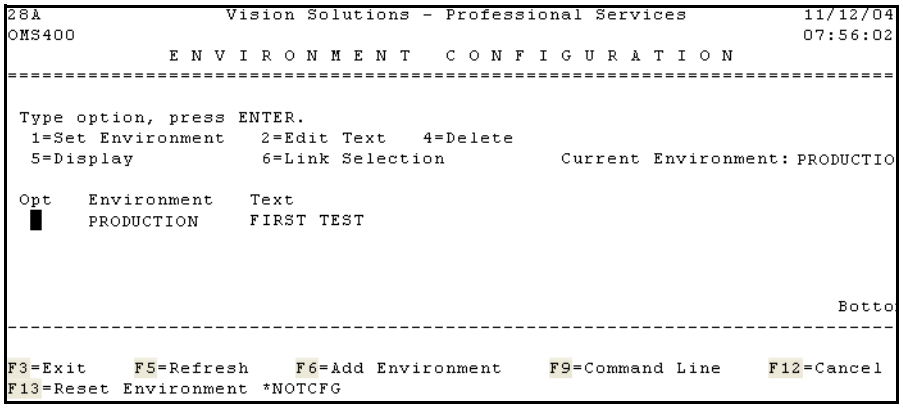
NOTE

The maximum number of environments that can be created is 9,999. Use only WRKENVCFG on the source system and ensure that the VSIARS library is included in the mirroring configuration and all objects are in synch. It is very important to ensure that the files ENVMSTP and ENVCFGP, and the data area CURENV are mirrored via OMS. The Advanced Role Swap Utility link must be in the active environment.

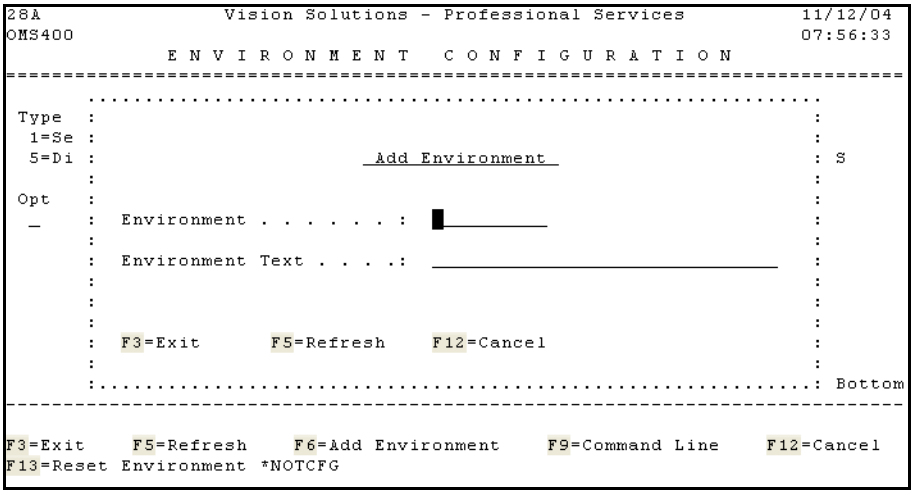
1. Ensure that the VSIARS library is in your library list. If not, from a command line, add the VSIARS library, then press Enter.

   ```
   ADDLIBLE VSIARS
   ```

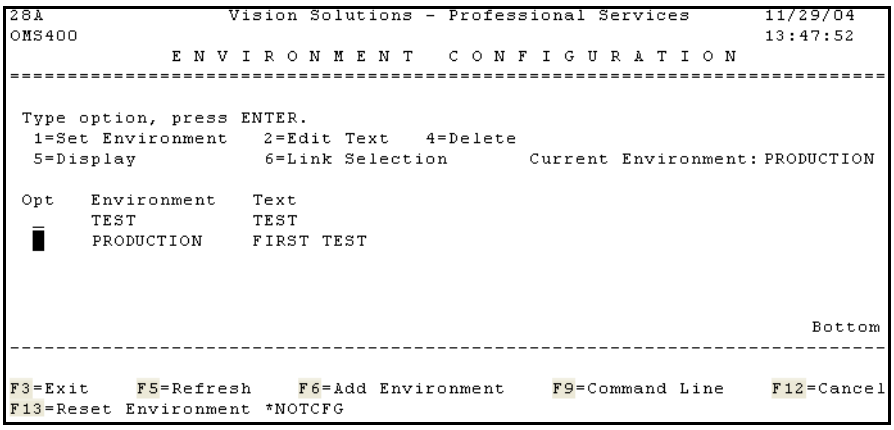
2. At a command prompt, type WRKENVCFG to display the Environment Configuration screen.



3. Press F6 (Add Environment) to add an environment.


28A Vision Solutions - Professional Services 11/12/04
OMS400 07:56:33
E N V I R O N M E N T C O N F I G U R A T I O N
Type
1=Se
5=Di
Opt
Add Environment
Environment . . . . . :
Environment Text . . . .:
F3=Exit F5=Refresh F12=Cancel
Bottom
F3=Exit F5=Refresh F6=Add Environment F9=Command Line F12=Cancel
F13=Reset Environment *NOTCFG

4. Type in the name and description of the environment to create, then press Enter to create the environment.


28A Vision Solutions - Professional Services 11/29/04
OMS400 13:47:52
E N V I R O N M E N T C O N F I G U R A T I O N
Type option, press ENTER.
1=Set Environment 2=Edit Text 4=Delete
5=Display 6=Link Selection Current Environment: PRODUCTION
Opt Environment Text
TEST TEST
PRODUCTION FIRST TEST
Bottom
F3=Exit F5=Refresh F6=Add Environment F9=Command Line F12=Cancel
F13=Reset Environment *NOTCFG

5. Associate the links with the environment configuration.

   a) Type 6 (Link Selection) next to the environment for which you want to select links, then press Enter to display the OMS/400 Link Selection screen.

```
28A                    Vision Solutions - Professional Services          11/12/04
OMS400                                                                   07:57:49
                                L I N K   S E L E C T I O N
================================================================================

 Type options, press Enter.
  1=Select Link   2=Deselect Link                    Environment:  PRODUCTION


 Opt   Link ID       Description                      Selected    Role
  _    LABDS2        DS DEMO LINK2                    *NO         SOURCE
  _    LABRES        SHEPARD DEMO LINK                *NO         SOURCE
  _    LABST01       ST DEMO LINK                     *NO         SOURCE
  _    ROLESWAP      ROLESWAP UTILITY                 *YES        SOURCE




                                                                        Bottom
--------------------------------------------------------------------------------

F3=Exit    F5=Refresh    F7=Display Environment    F9=Command Line    F12=Cancel
```

   b) Select 1 (Select Link) next to each link ID that you want to add to the environment.

   c) Press Enter to add the selected links to the environment. The value for the selected links changes from *NO to *YES in the Selected column.

   d) Press F3 (Exit) to return to the Environment Configuration screen.

6. Type option 5 (Display), then press Enter to verify the selected link IDs for the new environment.

```
28A                    Vision Solutions - Professional Services          11/12/04
OMS400                                                                   07:56:02
                        E N V I R O N M E N T   C O N F I G U R A T I O N
============== ..................................................  ============
               :                                                  :
 Type option,  :       Display Environment Configuration          :
  1=Set Enviro :                                                  :
  5=Display    :                                                  : nt: PRODUCTIO
               :  Environment: PRODUCTION                         :
 Opt   Environ :                                                  :
  5    PRODUCTIC:  Link ID       Text                            :
               :  ROLESWAP      ROLESWAP UTILITY                 :
               :                                                  :
               :                                                  :
               :                                                  :
               :                                                  :
               :                                        Bottom    :
               :                                                  :
               :                                                  :         Botto
-------------- :..................................................: ------------

F3=Exit    F5=Refresh    F6=Add Environment    F9=Command Line    F12=Cancel
F13=Reset Environment *NOTCFG
```

7. Go to step 2 in "Activating an Environment Configuration" on page 16 to set the current environment, or press F3 (Exit) to exit.

Activating an Environment Configuration

Making an environment the current environment enables the role swap process to execute steps against one or more OMS/400 links defined to the environment. Once set, the role swap menu or commands retrieve the environment name stored in the data area CURENV. Only one environment can be set as the current environment.

NOTE

If you do not want a current environment configured, press F13 (Reset Environment). F13 (Reset Environment) changes the value in the data area CURENV to *NOTCFG and the current environment defaults to the value ALL_LINKS (see "Configuring an Environment" on page 12 for more information).

1. Do one of the following to display the Environment Configuration screen.
   - At a command prompt, type WRKENVCFG.
   - From the Advanced Role Swap Utility Main menu, press F7 (WRKENVCFG).
2. Position the cursor next to the environment you want to set as the current environment, then select 1 (Set Environment) and press Enter.
3. Verify that the name of the selected environment displays in the Current Environment field on the Environment Configuration screen.

Setting up Exit Programs

The Advanced Role Swap Utility provides exit points that either start or end the applications and environment being role swapped. These exit points have been predefined within the role swap process, but still allow a set of steps to be performed that are customized for your environment. As part of the Advanced Role Swap Utility, two CL programs, ENDUSREXT and STRUSREXT, have been provided. These are shell programs. The steps that these programs execute need to be developed. These programs can be found in the source file QCLSRC in the library VSIARS.

To access these CL exit programs, you may have to restore the files from the save file ARSPGMSRC as follows (if not previously done when restoring a patch):

```
RSTOBJ OBJ(QCLSRC) SAVLIB(QTEMP) DEV(*SAVF)
SAVF(VSIARS/ARSPGMSRC) FILEMBR(*ALL) MBROPT(*NEW)
ALWOBJDIF(*NONE) RSTLIB(VSIARS)
```

The exit programs executed during the role swap are controlled by two data areas in VSIARS. The ENDEXTCFG and STREXTCFG data areas contain the program name and library name that are executed when you select the option from the Advanced Role Swap Utility menu. You can use the WRKEXTCFG or the CHGEXTCFG commands in the VSIARS library to view and change the values of these data areas. If you have already developed programs that can be used to start or end the appropriate pieces, you can change the data areas to the value of these programs.

The Advanced Role Swap Utility provides the framework to execute these programs on both the source or target systems, since you may have users accessing the target system and they must be stopped in order to switch the target system to the new source system.

Vision Solutions Professional Services or your Vision Industry Partner can work with you to implement the Advanced Role Swap Utility. this implementation includes the development of the Start user Application and End User Application programs that are called when you select the Start User Applications or End User Applications menu option (see "Ending User Applications" on page 35 and "Starting User Applications" on page 44 for more information on each of the menu options). These exit programs can be used with both planned and unplanned role swaps.

Verifying System Attributes

You can set up the file LSTSYSATRP to contain a list of commands that are executed when you select the Verify System Attributes option (see "Verifying System Attributes" on page 35 for information on verifying attributes before the role swap and "Verifying System Attributes" on page 45 for information on verifying attributes after a role swap). The file LSTSYSATRP is found in VSIARS. The file comes pre-defined with an example of the commands that can be executed.

Using the Advanced Role Swap Utility

The Advanced Role Swap Utility consists of a series of menu-based options you can use to execute a role swap. See the following sections for more information:

- "Understanding the Role Swap Process" on page 18
- "Accessing the Advanced Role Swap Utility Menus" on page 19
- "Understanding the User Application Status" on page 22

Understanding the Role Swap Process

This section describes the steps that occur when you perform a role swap. The role swap process is completed by a series of jobs that are submitted to batch. These jobs communicate with each other and a role swap is not completed until all jobs process correctly.

The role swap process is driven by the STRVSISWAP command. Once the STRVSISWAP command is submitted to the QCTL subsystem, it submits the CHKVSISWAP, OMSCHGROLE, and ODSCHGROLE jobs, as follows:

1. The role swap starts. STRVSISWAP submits CHKVSISWAP which then submits the OMSCHGROLE and ODSCHGROLE jobs to the QCTL subsystem. OMSCHGROLE checks for inactive objects and submits a job(s) that executes the OMSCHGROLE. The job name for the OMS/400 change role is the same as the link ID name with _SWP at the end in the QCTL subsystem.
2. The job STRVSISWAP submits the job CHKVSISWAP to the QCTL subsystem. CHKVSISWAP checks the new role for OMS/400 and ODS, submits to remote if specified, calls the role swap exit program, if configured, and restarts the application. For example, if the current role is SOURCE, CHKVSISWAP checks for TARGET. The job is delayed in ten second increments until both OMS/400 and ODS/400 have successfully swapped to be the new TARGET system. If an environment is being processed for the role swap, CHKVSISWAP only checks the role of link IDs configured to the environment.
3. Once the job CHKVSISWAP has identified the new role of the system, messages are sent to the QSYSOPR message queue indicating that OMS/400 and ODS/400 are ready to be the new source or target system.
4. If STRVSISWAP was specified to end user applications, STRVSISWAP submits the job ENDUSRAPPS to retrieve the value from the data area ENDEXTCFG and call the user exit program to end the application and communication for the respective role. If the local system is the SOURCE, STRVSISWAP passes the value SOURCE to the ENDUSRAPPS job. STRVSISWAP is delayed every ten seconds until ENDUSRAPPS has completed.

5. If configured to call a role swap exit program, the job RSUSREXT is submitted to the QCTL subsystem. RSUSREXT retrieves the value from the data area RSEXTCFG to call the user exit program at the completion of the role swap.

6. If specified to start the user application, the job STRUSRAPPS is submitted to the QCTL subsystem. STRUSRAPPS retrieves the value from the data area STREXTCFG to call the user exit program to start the application and communication for the new respective roles. If the local system is the new SOURCE system, then CHKVSISWAP passes the value SOURCE to the exit program to restart the application.

Accessing the Advanced Role Swap Utility Menus

The Advanced Role Swap Utility uses a series of menu-based options to execute the steps necessary in a role swap. The main menu groups the role swap into four phases, represented by four menu options. Selecting an option on the main menu displays the associated sub-menu from which you access the executable options associated with that phase.

To access the Advanced Role Swap Utility Main Menu:

1. Log in to the source system with a user profile that has *SECOFR authority.

2. From a command line, add the VSIARS library, then press Enter.

```
ADDLIBLE VSIARS
```

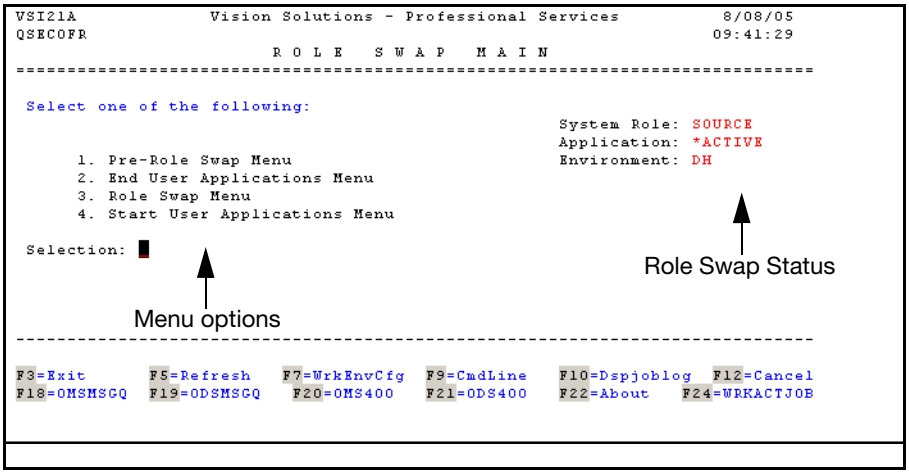
NOTE

If you copied the objects from the VSIARS library to another library, add the library to which you copied the objects.

3. From a command line, execute the ROLESWAP command, then press Enter.

```
ROLESWAP
```

The Role Swap Main Menu is displayed.


VSI21A Vision Solutions - Professional Services 8/08/05
QSECOFR 09:41:29
R O L E S W A P M A I N
Select one of the following:
System Role: SOURCE
Application: *ACTIVE
Environment: DH
1. Pre-Role Swap Menu
2. End User Applications Menu
3. Role Swap Menu
4. Start User Applications Menu
Selection:
Role Swap Status
Menu options
F3=Exit F5=Refresh F7=WrkEnvCfg F9=CmdLine F10=Dspjoblog F12=Cancel
F18=OMSMSGQ F19=ODSMSGQ F20=OMS400 F21=ODS400 F22=About F24=WRKACTJOB

The Role Swap menus contain the following:

- Role Swap Status displays the current state of mirroring and the application (see "Understanding the Role Swap Status" on page 20 for more information).
- Menu options list the available menu options. The main menu groups the role swap into four phases, represented by four menu options. Selecting an option on the main menu displays the associated submenu from which you access the executable options associated with that phase. To navigate within the Advanced Role Swap Utility menus, type the number of the menu option that you want to access, then press Enter.

Understanding the Role Swap Status

The Role Swap status displays the current state of mirroring and the application in the following fields:

- System Role displays the current role of the system (see "Understanding the System Role" on page 21)
- Application displays the status of the application (see "Understanding the User Application Status" on page 22)
- Environment displays the current environment (see "Understanding the Environment" on page 23)

Understanding the System Role

Each menu in the Advanced Role Swap Utility contains the System Role. The System Role displays the role of the current system. The system role is determined when a menu is displayed or an option is executed. It can be any of the following:

- SOURCE – The source system.
- TARGET – The target system.
- INCONSISTENT – If any of the following checks fail or do not match, the System Role is set to *INCONSISTENT:

NOTE

If a value of INCONSISTENT is returned, you cannot start the Pre-Role Swap or execute the actual Role Swap.
To determine why a value of INCONSISTENT was returned, use the RTVOMSINF command to determine the value for each of the parameters listed above (see page 90 for more information on the RTVOMSINF command).

Check	Description
ROLE	The OMS/400 and ODS/400 roles for the system do not match.
STATUS	At least one of the link IDs for the specified status does not match the status of the other link IDs in the group. The status of each link ID in the environment must match.
PWD	At least one of the link IDs for the specified password does not match the password of the other link IDs in the group. The password for each link ID in the environment must match.
RMTSYS	At least one of the link IDs for the specified remote system does not match the remote system for the other link IDs in the environment. The name of the remote OMS/400 system must match the link IDs in the environment.
SNDTYP	At least one of the link IDs for the specified send type does not match the send type of the other link IDs in the environment. The send type must be the same for each link ID in the environment.
MODE	At least one of the link IDs for the specified mode does not match the mode of other link IDs in the environment. The mode of each link ID in the environment must match.
RMTIP	At least one of the link IDs for the specified remote IP address does not match the remote IP address or DNS name of the other link IDs in the group. The remote IP address for each link ID in the group must match.

Understanding the User Application Status

Each menu in the Advanced Role Swap Utility contains the User Application Status. The User Application Status displays the current state of the application, as determined by the USRAPPSTS data area.

When either the ENDUSRAPPS or STRUSRAPPS program is called, the data area USRAPPSTS is changed, using the CHGAPPSTS command, to reflect the assumed state of the application, if the system role is SOURCE. For the target system, the Role Swap menu always assumes the application is unavailable (*NOTAVAIL).

You can also use the CHGAPPSTS command throughout the role swap process to change the current status of the application to indicate where the application is in the role swap process.

NOTE

If you do not use the CHGAPPSTS command or the ENDUSRAPPS or STRUSRAPPS programs (implemented by ending or starting applications), the User Application Status is not updated.

For example, on the source and target system prior to starting the role swap, the fields on the Advanced Role Swap Utility menu are as follows:

Source System:	**Target System:**
System Role: SOURCE	System Role: TARGET
Application: *ACTIVE	Application: *NOTAVAIL
Environment ALL_LINKS	Environment: ALL_LINKS

Once the role swap is started, the following occurs:

1. On the source system, the ENDUSRAPPS program is called.
2. The command “CHGAPPSTS *INACTPEND” is executed. This in turn, changes the data area USRAPPSTS to the value of *INACTPEND.

   System Role: SOURCE

   Application: *INACTPEND

   Environment: ALL_LINKS
3. The user exit program stored in the data area ENDEXTCFG is called to end the application.

4. When the user exit program returns to ENDUSRAPPS, the commands "CHGAPPSTS *INACTIVE" and CHGAPPSTS *NOTAVAIL" are executed and the User Application Status is updated.

Source System:	Target System:
System Role: SOURCE	System Role: SOURCE
Application: *INACTIVE	Application: *NOTAVAIL
Environment ALL_LINKS	Environment: ALL_LINKS

5. At this time, the application has been restricted from the users. The OMS/400 and ODS/400 role swap starts.
6. After the role change on the new source system, program STRUSRAPPS is called.
7. The command "CHGAPPSTS *ACTPEND" is executed. This changes the data area USRAPPSTS to the value of *ACTPEND.

   System Role: SOURCE

   Application: *ACTPEND

   Environment: ALL_LINKS
8. The user exit program stored in the data area STREXTCFG is called to start the application.
9. When the user exit program returns to STRUSRAPPS, the command "CHGAPPSTS *ACTIVE" is executed.

   System Role: SOURCE

   Application: *ACTIVE

   Environment: ALL_LINKS

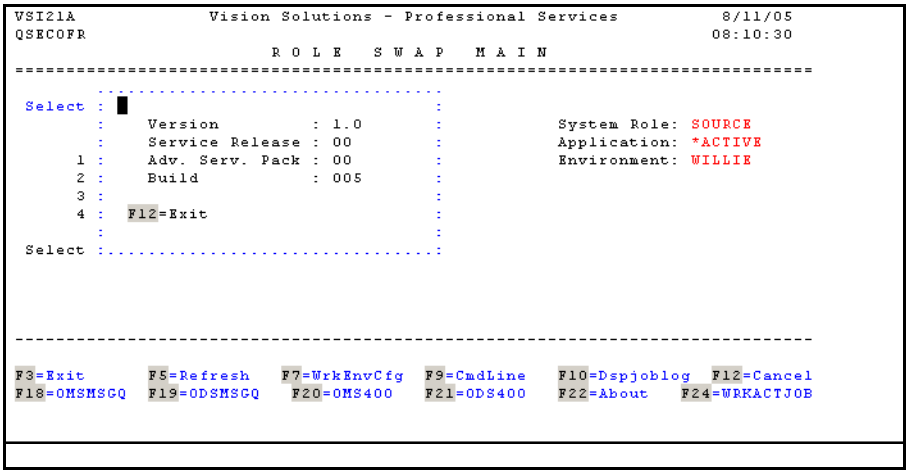
Understanding the Environment

Each menu in the Advanced Role Swap Utility displays the Environment. The environment is a group of link IDs to process during a role swap. An environment can be created and OMS/400 link IDs can be selected for the environment (see "Configuring an Environment" on page 12 for more information). The Environment field can contain either of the following values:

- ALL_LINKS – All link IDs configured to OMS/400 will be processed for the role swap
- *Current Environment* – Link IDs in the current environment will be processed for the role swap.

Determining the Version

To display information about which version of the Advanced Role Swap Utility is installed, press F22 from the Role Swap Main Menu.



The following information about the version of the Advanced Role Swap Utility that is installed is displayed:

Value	Description
Version	The version that is installed.
Service Release	The Service Release (SR) that is installed.
Adv. Serv. Pack	The Advanced Service Pack (ASP) that is installed.
Build	The build number that is installed. The build number corresponds to the current patch level that is installed.

Performing a Role Swap

3

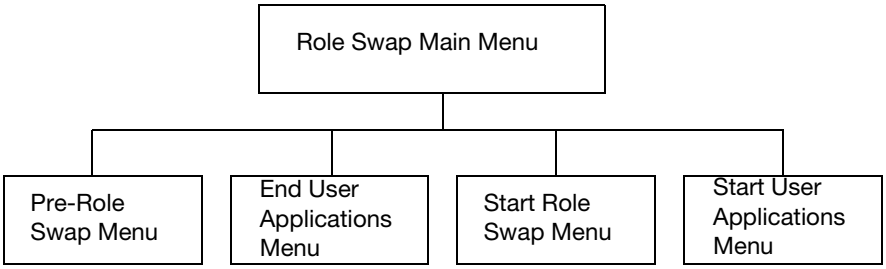
Overview

NOTE

Before executing a role swap, you must complete the procedures in Chapter 2, "Getting Started."

The Advanced Role Swap Utility contains a standard set of procedures and programs to execute planned and unplanned role swaps. Planned and unplanned role swaps can be broken down into a series of steps that serve as a high level guide for performing a role swap of a mirrored environment. The steps are not comprehensive and may not include everything required to role swap your environment (see Chapter 1, "Overview" for more information).

The steps in the Advanced Role Swap Utility are accessed from the menu options on the Advanced Role Swap Utility menu. The main menu groups the role swap into four phases, represented by four menu options. Selecting an option on the main menu displays the associated submenu from which you can access the executable options associated with that phase.



For more information on the individual submenus, see the following:

- For information on the Pre-Role Swap menu, see "Performing a Preliminary Pre-Role Swap Check" on page 27.
- For information on the End User Applications menu, see "Restricting the Mirrored Environment" on page 34.
- For information on the Start Role Swap menu, see "Performing the Role Swap" on page 36.
- For information on the Start User Applications menu, see "Starting Applications on the New Source" on page 44

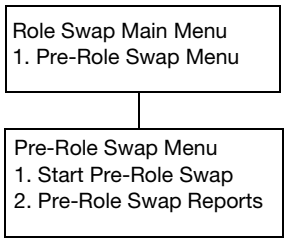
Do one of the following:

- To complete a *planned* role swap, do the following in the order shown.
- 'To perform an *unplanned* role swap, start with step 3 substep d.

Reviewing the Role Swap Process

1. From the Pre-Role Swap menu, do the following:
   a) Perform one or more preliminary pre-role swap checks (see "Performing a Preliminary Pre-Role Swap Check" on page 27) on the source system.
   b) Display the pre-role swap check reports to identify any issues (see "Displaying the Pre-Role Swap Reports" on page 33).
2. From the End User Applications Menu, do the following:
   a) End the user applications (see "Ending User Applications" on page 35) on the source and target systems.
   b) Verify system attributes (see "Verifying System Attributes" on page 35) on the source and target systems.
3. From the Start Role Swap menu, do the following:
   a) Perform the role swap check (see "Performing the Role Swap Check" on page 37) on the source system.
   b) Review the role swap check reports (see "Reviewing the Role Swap Check Reports" on page 42) on the source.
   c) Start the role swap on the source (see "Starting the Role Swap" on page 42).
   d) Start the role swap on the target (see "Starting the Role Swap" on page 42).
4. From the Start User Applications menu, do the following:
   a) Start user applications (see "Starting User Applications" on page 44) on the new source and target systems.
   b) Verify system attributes (see "Verifying System Attributes" on page 45) on the new source and target systems.

Performing a Preliminary Pre-Role Swap Check



The preliminary pre-role swap check consists of the following:

1. Running the pre-role swap check to locate and fix system issues before executing a planned role swap (see "Performing the Pre-Role Swap Check" on page 27)
2. Viewing the results of the pre-role swap check (see "Displaying the Pre-Role Swap Reports" on page 33)

Performing the Pre-Role Swap Check

The preliminary pre-role swap check is a series of commands that enable you to check on the general health of the mirroring environment by notifying and correcting issues before they become major issues or interfere with the execution of a role swap. It should be run prior to executing a planned role swap in order to minimize the possibility of any issues interfering with the role swap process.

The pre-role swap check is driven by the STRVSICHK command. The STRVSICHK command triggers a series of individual commands that perform the pre-role swap check. Each command in the pre-role swap check can also be run individually from a command line. (All commands are found in the VSIARS library.) The amount of time it takes to perform the check varies according to the number of OMS/400 links to be checked.

NOTE

We recommend that you always submit an OMS/400 sample and an ODS/400 synch check hours in advance of the role swap. The time required to complete a synch check depends on the number of objects and file members selected in a link.
Once a synch check has been submitted, do not start the role swap process until all synch check jobs complete.

For example, you can check ODS/400 for errors processing objects using either of the following:

- **CHKODSOBJ *ERROR** checks for objects in *ERROR status.
- **CHKODSOBJ *PROCESSING** checks for objects in the *PROCESSING status.

Each of the commands in the pre-role swap check are described in the following procedure. See Appendix D, "Role Swap Commands" for more information on the individual commands in the pre-role swap check.

NOTE

Executing the pre-role swap check when users and production are running on the source system can produce inaccurate results on some reports. For example, when checking link definitions, if the link is behind, differences between the source and target may exist in the number of objects defined to the link, as well as the number of inactive objects.

1. From the Role Swap Main Menu screen, select 1 (Pre-Role Swap Menu), then press Enter.
2. On the Pre-Role Swap screen, select 1 (Start Pre-Role Swap), then press Enter.
3. Enter the password for the Pre-Role Swap, then press Enter.

   The password is the same as the OMS/400 link IDs. All OMS/400 link IDs that will be role swapped must have the same password. If the passwords are not the same, an error displays and you will not be able to perform the pre-role swap check. To change an OMS/400 link ID password, refer to the *VISION SUITE Enterprise Edition OMS/400 – Object Mirroring System Product Manual*.

   Once the password is entered, the Start VSI Check (STRVSICHK) screen displays.

```
                          Start VSI Check (STRVSICHK)

Type choices, press Enter.

Check System Communication . . .   YES           *YES, *NO
Check Link Definitions . . . . .   *YES          *YES, *NO
Check Open Commits . . . . . . .   *YES          *YES, *NO
Verify Journal Status  . . . . .   *YES          *YES, *NO
Build OMS Trigger Definitions  . > *YES          *YES, *NO
Type of OMS Sync Check . . . . . > *SAMPLE       *SAMPLE, *ERROR, *NONE
Submit ODS Sync Check  . . . . . > *YES          *YES, *NO
Send PLM Configuration . . . . .   *YES          *YES, *NO
Send ODS Configuration . . . . .   *YES          *YES, *NO
Check ODS Error Trans  . . . . .   *YES          *YES, *NO
Check ODS Processing Trans . . .   *YES          *YES, *NO
Check OMS Inactive Objects . . .   *YES          *YES, *NO

                                                                      Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

4. Next to each task, type one of the values shown to the right of the task. Type *YES to execute the task or *NO to skip executing the task for each of the following and select the Type of OMS/400 Sync Check:

Value	Description
Check System Communication (CHKSYSCMN)	Retrieves and compares the following communication attributes within a link ID: Remote System, Remote Location, Communication Protocol, Mode, Remote IP or DNS name. If any link ID does not match, then the process stops and the attribute must be corrected before re-executing the command. Once the attributes have been verified, the process verifies communication using a ping request, remote program call to the LISTENER2 job, and either a test FTP or DDM. • If the data area VSIUSEFTP is set to Y, then a test FTP is executed. • If the data area VSIUSEFTP is set to N, then a test DDM is executed. See "CHKSYSCMN (Check System Communication)" on page 79 for more information.
Check Link Definitions (CHKLNKDFN)	Compares the total number of mirrored and inactive objects for each link ID to be processed. If the total number of mirrored and inactive objects for each link ID are not equal, the QSYSPRT spool file is created to summarize the totals. You can use OMS/400 Object Status to identify issues on both the source and target systems. If you are unable to resolve the issues, contact CustomerCare. See "Checking Link Definitions" on page 59 for more information. Note: Since unapplied transactions can affect the total number of mirrored and inactive objects, check that link status for OMS/400 on the source and target systems are current. See "CHKLNKDFN (Check Link Definitions)" on page 70 for more information.

Value	Description
Check Open Commits (CHKOPNCMT)	Retrieves the number of records from the logical file MRCCIDLB on the target system for the link library being processed. The logical file points to records in MRCCIDP that have a status other than A, which indicates that OMS/400 has not received the end commit transaction. Consequently, user spaces are retained and the time to complete an OMS/400 Change Role is affected because all the user spaces are being copied to the OMS/400 product library and searched in order to rollback uncommitted transactions. If the application is active on the source system, the open commits may be valid. However, if the number of user spaces is approaching 10,000 contact CustomerCare so that you can avoid wrapping the data. If the target system link ID has open commits, the QSYSPRT spool file is created to summarize the finding (see "Checking OMS/400 Open Commits" on page 60 for more information). See "CHKOPNCMT (Check OMS/400 Open Commits)" on page 77 for more information.
Verify Journal Status (VFYJRNSTS)	Submits the journal verification process to the target system. The journal verification process verifies that all files are journaled to the correct journal associated to the link ID being processed. If a file is journaled to the wrong journal or is not journaled, the job attempts to start journaling. The job creates the QPRINT spool file with user data MRR330. Review this report on the target system to ensure that all files are journaled. Entries with the word ERROR indicate an issue while attempting to start journaling. Check object allocation and re-run the VFYJRNSTS command on the target system to resolve (see "Verifying Journal Status" on page 60 and "VFYJRNSTS (Verify Journal Status)" on page 110 for more information).

Value	Description
Build OMS Trigger Definitions (BLDOMSTRG)	Rebuilds the trigger maintenance file MRTRGFP. The trigger maintenance file enables and disables trigger definitions for mirrored physical files during the final stages of an OMS/400 role change. It ensures that all records exist and that all old records are deleted from the trigger maintenance file prior to a role swap. The process first deletes all records from MRTRGFP on the source and target system. Then, the OMS/400 command OMSVFYTRG scans all mirrored libraries for trigger definitions. If a definition is found, OMSVFYTRG adds the record to MRTRGFP on the source and target system. See "BLDOMSTRG (Build OMS/400 Trigger Definitions)" on page 64 for more information.
Type of OMS Sync Check SBMOMSSYNC	Selects the type of OMS/400 synch check to perform. • *SAMPLE checks every object defined to the link ID. The job is submitted to the OMS400 subsystem with the same name as the link ID. • *ERROR reads the file MRSERRP (Allocation Error Log) and if any records configured to the link ID are being processed, a synch check is performed. The job is submitted to the OMS400 subsystem with the name SYNCH-KERR. • *NONE does not perform a synch check. See "SBMOMSSYNC (Submit OMS/400 Synch Check)" on page 94 for more information.
Submit ODS Sync Check (SBMODSSYNC)	Submits the ODS/400 synch check jobs to the ODS400 subsystem. If specified to submit multiple jobs, there is an ODS/400 synch check job for each system or path defined to ODS. The job name is ODSSYNCHK and the spool file names are ODP261P2 and ODP261P1. Review the ODS/400 synch check reports to identify issues. See "SBMODSSYNC (Submit ODS/400 Synch Check)" on page 93 for more information.

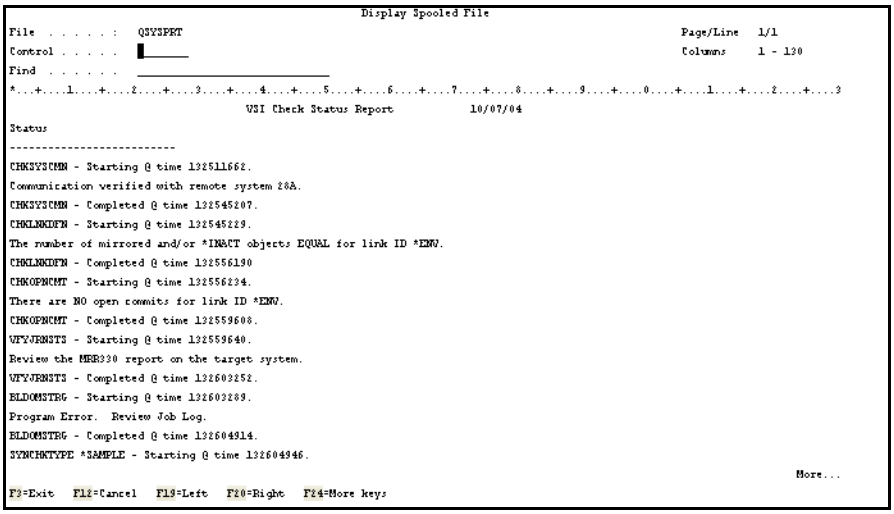
Value	Description
Send PLM Configuration (SNDPLMCFG)	Copies the PLM configuration files MRLMONP and MREXCLP to the target system and writes a control record to MRRCFGP for each link ID processed. In addition, an OMS/400 product program is called to read the file MRRCFGP and copy the files to the target system. FTP or DDM is used to copy the files. See "SNDPLMCFG (Send PLM Configuration)" on page 100 for more information.
Send ODS Configuration (SNDODSCFG)	Copies the ODS/400 configuration files ODOBJSP, ODPMSTP and ODPTIMP to the target system and writes a control record to ODRCFGP for each file. An ODS/400 product program is called to read the file ODRCFGP and to copy the configuration files to the target system. FTP or DDM is used to copy the files. See "SNDODSCFG (Send ODS/400 Configuration)" on page 99 for more information.
Check ODS Error Trans (CHKODSOBJ)	Checks ODS/400 for error (*ERROR) transactions. If *ERROR transactions are found, the user is prompted with the ODS/400 Object Status display. All error transactions must be completed or removed in order to complete an ODS/400 role swap. See "CHKODSOBJ (Check ODS/400 Object Transaction)" on page 73 for more information.
Check ODS Processing Trans (CHKODSOBJ)	Checks ODS/400 for transactions that are being processed. If *PENDING, *SEND, or *WAITING transactions are found, the user is prompted with the ODS/400 Object Status display. All incomplete transactions must be completed or removed in order to complete an ODS/400 role swap. See "CHKODSOBJ (Check ODS/400 Object Transaction)" on page 73 for more information.
Check OMS Inactive Objects (CHKOMSOBJ)	Checks OMS/400 for inactive objects. If inactive objects are found, the user is prompted with the OMS/400 Object Status display. All inactive objects must be re-synchronized prior to the OMS/400 role swap. See "CHKOMSOBJ (Check OMS/400 Objects)" on page 75 for more information.

5. Once the tasks are configured, press Enter to start the check. Messages display at the bottom of the screen as each task in the check is executed.

NOTE

Depending on the number of OMS/400 links selected, this may take a few minutes to complete.

When the check is complete, the Display Spooled File screen displays.


Display Spooled File
File . . . . . : QSYSPRT
Page/Line 1/1
Control . . . . . _____
Columns 1 - 130
Find . . . . . _____
VSI Check Status Report 10/07/04
Status
CHKSYSCMN - Starting @ time 1325111662.
Communication verified with remote system 28A.
CHKSYSCMN - Completed @ time 1325452O7.
CHKLNKDFN - Starting @ time 1325452O9.
The number of mirrored and/or *INACT objects EQUAL for link ID *ENV.
CHKLNKDFN - Completed @ time 1325561190
CHKOPNCMT - Starting @ time 1325562O4.
There are NO open commits for link ID *ENV.
CHKOPNCMT - Completed @ time 1325595O8.
VFYJRNSTS - Starting @ time 1325595O0.
Review the MRR330 report on the target system.
VFYJRNSTS - Completed @ time 1326032O2.
BLDOMSTRG - Starting @ time 1326032O9.
Program Error. Review Job Log.
BLDOMSTRG - Completed @ time 1326049l4.
SYNCHKTYPE *SAMPLE - Starting @ time 1326049O6.
More...
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys

The Displayed Spooled File screen displays the final status for each task selected to be processed. Each task has a keyword name along with a starting and completed date and time.

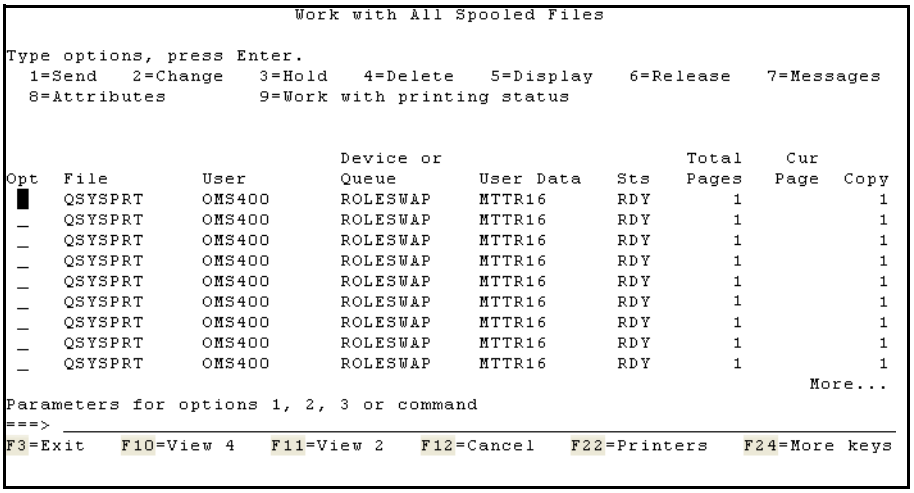
- If the user was prompted with a display or a spool file was created as the result of an individual check, a message indicates that a particular display or a spool file should be reviewed.
- If an error occurred within the task, a message states “Program Error. Review Job log.” (see “This section outlines the basic steps for resolving program errors.” on page 57 for more information).

Displaying the Pre-Role Swap Reports

The Pre-Role Swap reports contain the results of the preliminary pre-role swap. With this information you can identify and solve issues that may interfere with the role swap or the health of your mirroring environment.

1. From the Role Swap Main Menu screen, select 1 (Pre-Role Swap Menu), then press Enter.
2. On the Pre-Role Swap screen, select 2 (Pre-Role Swap Reports), then press Enter.

   The Work With All Spooled Files screen displays. It lists the available reports.


Work with All Spooled Files
Type options, press Enter.
1=Send 2=Change 3=Hold 4=Delete 5=Display 6=Release 7=Messages
8=Attributes 9=Work with printing status
Opt File User Device or Queue User Data Sts Total Pages Cur Page Copy
QSYSPRT OMS400 ROLESWAP MTTR16 RDY 1 1
More...
Parameters for options 1, 2, 3 or command
===>
F3=Exit F10=View 4 F11=View 2 F12=Cancel F22=Printers F24=More keys

3. Do one of the following:

   - To display the spool file, locate the spool file with the user data labeled MTTR16, then select option 5 (Display) and press Enter.
   - Press F12 (Cancel) to exit.

Restricting the Mirrored Environment

Role Swap Main Menu
2. End User Applications Menu

End User Applications Menu
1. End User Applications
2. Verify System Attributes

For planned role swaps, you must end all applications, interfaces, and subsystems on the source system that can make changes to the production database files and other objects that are defined to the mirroring environment, as well as ending user access to the system. By restricting user access to the source system, no additional journal entries are created and the mirroring environment becomes current.

Once the applications have ended, you can verify the system attributes for your environment (see"Verifying System Attributes" on page 35).

To restrict the mirrored environment, do the following:

1. End all applications, interfaces, and subsystems on the source system, as well as ending user access to the system. In addition, on the target system, you must end subsystems and applications that access the mirrored environment and end user access to the system. See "Ending User Applications" on page 35 for more information.
2. After the applications have ended, verify the attributes on the system (see "Verifying System Attributes" on page 35).

Ending User Applications

You can end user applications interactively or as a batch job, depending upon the Submit to Batch value. If doing a planned role swap, you should end the user applications on both the source and target systems.

1. From the Role Swap Main Menu, select option 2 (End User Applications Menu), then press Enter to display the End User Applications menu.
2. Select option 1 (End User Applications).
3. Enter the password to end the user applications, then press Enter. The password is the same as the OMS/400 link IDs. All OMS/400 link IDs that will be role swapped must have the same password. If the passwords are not the same, an error displays. To change an OMS/400 link ID password, refer to the *VISION SUITE Enterprise Edition OMS/400 – Object Mirroring System Product Manual*.

   The End User Applications (ENDUSRAPPS) screen displays.

```
                    End User Applications (ENDUSRAPPS)

Type choices, press Enter.

Submit to Batch  . . . . . .   YES          *YES, *NO









                                                                      Bottom
F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
F24=More keys
```

4. In Submit to Batch, do one of the following:
   - Type *YES and press Enter to submit the process as a batch job, then enter the job queue in which you want the job to be submitted.
   - Type *NO then press Enter to run the process interactively.

Verifying System Attributes

After the applications have ended, for a planned role swap, verify the system attributes for your environment on the source and target systems (see "Verifying System Attributes" on page 17 to configure which attributes are displayed). The LSTSYSATRP file should already be set up with the list of commands that are executed during system attribute verification. The Advanced Role Swap Utility comes pre-defined with an example of the commands that could be run to display system information for visual verification.

1. From the Role Swap Main Menu, select option 2 (End User Applications Menu), then press Enter to display the End User Applications menu.
2. Select option 2 (Verify System Attributes) to display the Display Network Attributes screen.

```
                        Display Network Attributes
                                                              System:   28A
Current system name  . . . . . . . . . . . . . . . :   28A
  Pending system name  . . . . . . . . . . . . . . :
Local network ID . . . . . . . . . . . . . . . . . :   APPN
Local control point name . . . . . . . . . . . . . :   28A
Default local location . . . . . . . . . . . . . . :   28A
Default mode . . . . . . . . . . . . . . . . . . . :   BLANK
APPN node type . . . . . . . . . . . . . . . . . . :   *ENDNODE
Data compression . . . . . . . . . . . . . . . . . :   *NONE
Intermediate data compression  . . . . . . . . . . :   *NONE
Maximum number of intermediate sessions  . . . . . :   200
Route addition resistance  . . . . . . . . . . . . :   128
Server network ID/control point name . . . . . . . :   *LCLNETID    *ANY


                                                                          More..
Press Enter to continue.

F3=Exit    F12=Cancel
```

3. Press Enter to view the next screen. The screens that display and the information contained in the screens vary according to your installation. However, for each screen that displays, you must verify that the entries on each screen are correct, then press Enter to display the next screen. (For example, in the Work with Job Schedule Entries screen, verify that all jobs are on hold, then press Enter.)
4. When all screens have been verified, press F12 (Cancel) to return to the Role Swap Menu screen.

Performing the Role Swap

Role Swap Main Menu
3. Role Swap Menu

Start Role Swap Menu
1. Start Role Swap Check
2. Role Swap Check Reports
3. Start Role Swap

Once you have completed both the preliminary pre-role swap check on the source (see "Performing a Preliminary Pre-Role Swap Check" on page 27) and ended user applications on both the source and target (see"Restricting the Mirrored Environment" on page 34), you can start the role swap. Do the following to start the role swap:

1. Now that user applications have been ended, perform a role swap check (see "Performing the Role Swap Check" on page 37).
2. Review the reports generated by the role swap check (see "Reviewing the Role Swap Check Reports" on page 42).
3. Start the role swap (see "Starting the Role Swap" on page 42).

Performing the Role Swap Check

This check enables you to check the health of the mirrored environment prior to a planned role swap. This check uses the STRVSICHK command, which is also used in the pre-role swap check (see"Performing the Pre-Role Swap Check" on page 27 for more information). However, since applications have been ended, additional checks are executed to ensure that no journal transactions are being generated for the OMS/400 links that are being role swapped. The amount of time it takes to perform the check varies according to the number of OMS/400 links to be checked.

1. From the Role Swap Main Menu screen, select 3 (Role Swap Menu), then press Enter.
2. On the Start Role Swap screen, select 1 (Start Role Swap Check), then press Enter.
3. Enter the password for the role swap check, then press Enter. The password is the same as the OMS/400 link IDs. All OMS/400 link IDs that will be role swapped must have the same password. If the passwords are not the same, an error displays. To change an OMS/400 link ID password, refer to the *VISION SUITE Enterprise Edition OMS/400 – Object Mirroring System Product Manual*.

   Once the password is entered, the Start VSI Check (STRVSICHK) screen displays.

```
                          Start VSI Check (STRVSICHK)

Type choices, press Enter.

Check System Communication . . .    YES           *YES, *NO
Check Link Definitions . . . . .    *YES          *YES, *NO
Check Open Commits . . . . . . .    *YES          *YES, *NO
End Auto Sync Check  . . . . . . > *YES          *YES, *NO
Type of OMS Sync Check . . . . . > *ERROR        *SAMPLE, *ERROR, *NONE
Check ODS Error Trans  . . . . .    *YES          *YES, *NO
Check ODS Processing Trans . . .    *YES          *YES, *NO
Check OMS Inactive Objects . . .    *YES          *YES, *NO
Send U70 Journal Entry . . . . .    *YES          *YES, *NO
Check Journal Sequence Numbers      *YES          *YES, *NO



                                                                      Bottor
F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
F24=More keys
```

4. Next to each task, type one of the values shown to the right of the task. Type *YES to execute the task or *NO to skip executing the task for each of the following and select the Type of OMS/400 Sync Check:

Value	Description
Check System Communication (CHKSYSCMN)	Retrieves and compares the following communication attributes within a link ID: Remote System, Remote Location, Communication Protocol, Mode, Remote IP or DNS name. If any link ID does not match, then the process stops and the attribute must be corrected before re-executing the command. Once the attributes have been verified, the process verifies communication using a ping request, remote program call to the LISTENER2 job, and either a test FTP or DDM. • If the data area VSIUSEFTP is set to Y, then a test FTP is executed. • If the data area VSIUSEFTP is set to N, then a test DDM is executed. See "CHKSYSCMN (Check System Communication)" on page 79 for more information.
Check Link Definitions (CHKLNKDFN)	Compares the total number of mirrored and inactive objects for each link ID to be processed. If the total number of mirrored and inactive objects for each link ID are not equal, the QSYSPRT spool file is created to summarize the totals. You can use OMS/400 Object Status to identify issues on both the source and target systems. If you are unable to resolve the issues, contact CustomerCare. See "Checking Link Definitions" on page 59 for more information. Note: Since unapplied transactions can affect the total number of mirrored and inactive objects, check that link status for OMS/400 on the source and target systems are current.

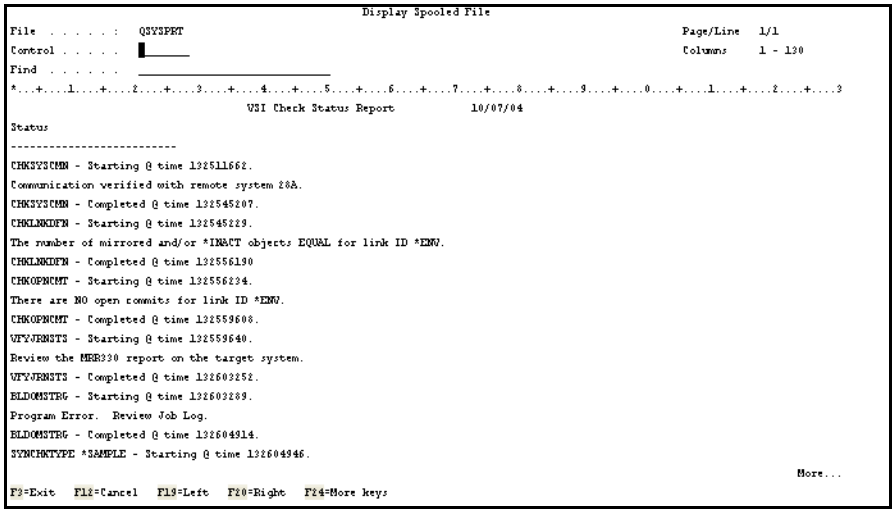
Value	Description
Check Open Commits (CHKOPNCMT)	Retrieves the number of records from the logical file MRCCIDLB on the target system for the link library being processed. The logical file points to records in MRCCIDP that have a status other than A, which indicates that OMS/400 has not received the end commit transaction. Consequently, user spaces are retained and the time to complete an OMS/400 Change Role is affected because all the user spaces are being copied to the OMS/400 product library and searched in order to rollback uncommitted transactions. If the application is active on the source system, the open commits may be valid. However, if the number of user spaces is approaching 10,000 contact CustomerCare. If the target system link ID has open commits, the QSYSPRT spool file is created to summarize the finding (see "Checking OMS/400 Open Commits" on page 60 for more information). See "CHKOPNCMT (Check OMS/400 Open Commits)" on page 77 for more information.
End Auto Sync Check (ENDS3)	Ends the auto synch check on the source system. If the auto synch check is active, the job ending with "S3" ends immediately for the link ID being processed. See "ENDS3 (End S3)" on page 80 for more information.

Value	Description
Type of OMS Sync Check (SBMOMSSYNC)	Selects the type of OMS/400 synch check to perform. • *SAMPLE checks every object defined to the link ID. The job is submitted to the OMS400 subsystem with the same name as the link ID with QSYS appended. • *ERROR reads the file MRSERRP (Allocation Error Log) and if any records configured to the link ID are being processed, a synch check is performed. The job is submitted to the OMS400 subsystem with the name SYNCHKERR. • *NONE does not perform a synch check. **NOTE** In order to execute a role swap in the shortest amount of time, select *ERROR as the type of OMS/400 synch check. See "SBMOMSSYNC (Submit OMS/400 Synch Check)" on page 94 for more information.
Check ODS Error Trans (CHKODSOBJ)	Checks ODS/400 for error (*ERROR) transactions. If *ERROR transactions are found, the user is prompted with the ODS/400 Object Status display. All error transactions must be completed or removed in order to complete an ODS/400 role swap. See "CHKODSOBJ (Check ODS/400 Object Transaction)" on page 73 for more information.
Check ODS Processing Trans (CHKODSOBJ)	Checks ODS/400 for transactions that are being processed. If *PENDING, *SEND, or *WAITING transactions are found, the user is prompted with the ODS/400 Object Status display. All incomplete transactions must be completed or removed in order to complete an ODS/400 role swap. See "CHKODSOBJ (Check ODS/400 Object Transaction)" on page 73 for more information.

Value	Description
Check OMS Inactive Objects (CHKOMSOBJ)	Checks OMS/400 for inactive objects. If inactive objects are found, the user is prompted with the OMS/400 Object Status display. All inactive objects must be re-synchronized prior to the OMS/400 role swap. See "CHKOMSOBJ (Check OMS/400 Objects)" on page 75 for more information.
Send U70 Journal Entry (SNDJRNU70)	Sends a U70 journal entry into the journal to ensure that all transactions are processed. See "SNDJRNU70 (Send Journal U70)" on page 97 for more information.
Check Journal Sequence Numbers (CHKJRNSEQ)	Checks the OMS/400 sequence numbers for all jobs in a link ID to ensure the source and target are at the same sequence number. If any of the jobs does not return the journal sequence number of the local journal, the user is prompted with the OMS/400 System Status display. All journal transactions must be sent and applied prior to a OMS/400 role swap. See "CHKJRNSEQ (Check Journal Sequence Numbers)" on page 68 for more information.

5. Once the checks are configured, press Enter to start the check. Messages display at the bottom of the screen as each check is executed.

   When the check is complete, the Display Spooled File screen displays.


Display Spooled File
File . . . . . : QSYSPRT
Control . . . . .
Find . . . . . .
Page/Line 1/1
Columns 1 - 130
VSI Check Status Report 10/07/04
Status
CHKSYSCMN - Starting @ time 1325111662.
Communication verified with remote system 28A.
CHKSYSCMN - Completed @ time 1325145207.
CHKLNKDFN - Starting @ time 1325145229.
The number of mirrored and/or *INACT objects EQUAL for link ID *ENV.
CHKLNKDFN - Completed @ time 1325556190
CHKOPNCMT - Starting @ time 1325556234.
There are NO open commits for link ID *ENV.
CHKOPNCMT - Completed @ time 1325559608.
VFYJRNSTS - Starting @ time 1325559640.
Review the MRB330 report on the target system.
VFYJRNSTS - Completed @ time 1326603252.
BLDOMSTRG - Starting @ time 1326603289.
Program Error. Review Job Log.
BLDOMSTRG - Completed @ time 1326604914.
SYNCHKTYPE *SAMPLE - Starting @ time 1326604946.
More...
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys

The Displayed Spooled File screen displays the final status for each task selected to be processed. Each task has a keyword name along with a starting and completed date and time. If the user was prompted with a

display or a spool file was created as the result of an individual check, a message indicates that a particular display or a spool file should be reviewed. If an error occurred within the task, a message states "Program Error. Review Job log." (see "Resolving Pre-Check Errors" on page 57 for more information).

6. Press Enter or F12 (Cancel) to return to the Role Swap menu.

Reviewing the Role Swap Check Reports

The role swap check report contains the results of the role swap check on the source system. With this information you can identify and solve issues that may interfere with the role swap.

1. From the Role Swap Main Menu screen, select 3 (Role Swap Menu), then press Enter.
2. On the Start Role Swap screen, select 2 (Role Swap Check Reports), then press Enter.

   The Work With All Spooled Files screen displays. It shows the spool files for the current user.

```
                          Work with All Spooled Files

Type options, press Enter.
  1=Send    2=Change    3=Hold    4=Delete    5=Display    6=Release    7=Messages
  8=Attributes          9=Work with printing status


                                Device or                          Total   Cur
Opt  File          User         Queue        User Data    Sts      Pages  Page  Copy
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
 _   QSYSPRT       OMS400       ROLESWAP     MTTR16       RDY          1           1
                                                                              More...
Parameters for options 1, 2, 3 or command
===>
F3=Exit    F10=View 4    F11=View 2    F12=Cancel    F22=Printers  F24=More keys
```

3. Locate the spool file with the user data labeled MTTR16, then select option 5 to display the spool file.
4. Once work has been completed with the above screen, press F12 (Cancel).

Starting the Role Swap

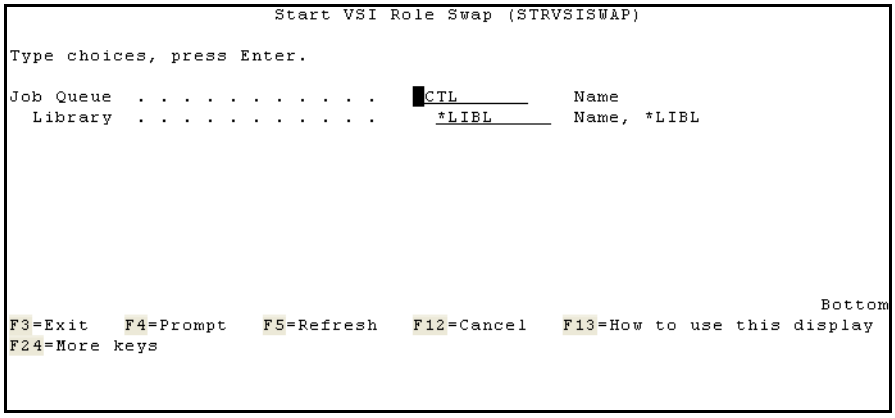
Once you are satisfied with the results of the role swap check, you can start the role swap process.

- For a planned role swap, run this process on the source and target systems.
- For an unplanned role swap, run this process on the target only.

For more information on the jobs that are submitted as part of the role swap, see "Understanding the Role Swap Process" on page 18.

1. From a command line on the source, type ROLESWAP to display the Role Swap Main menu.
2. Select option 3 (Role Swap Menu), then press Enter to display the Start Role Swap menu.
3. Select option 3 (Start Role Swap), then press Enter.
4. Enter the password for the role swap, then press Enter. The password is the same as the OMS/400 link IDs. All OMS/400 link IDs that will be role swapped must have the same password. If the passwords are not identical, an error displays. To change an OMS/400 link ID password, see the *VISION SUITE Enterprise Edition OMS/400 – Object Mirroring System Product Manual*.

   The Start VSI Role Swap (STRVSISWAP) screen displays.


Start VSI Role Swap (STRVSISWAP)
Type choices, press Enter.
Job Queue . . . . . QCTL Name
Library . . . . . *LIBL Name, *LIBL
Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

5. Do one of the following to start the role swap:
   - Press Enter to accept the defaults. The default job queue is QCTL since this subsystem is still active after the user applications have ended.
   - Enter a job queue and a library. The job queue determines in which subsystems the jobs run.

   NOTE

   If either of the end or start user exit programs cannot be found, the role swap process will not start, regardless of the parameter settings.

6. To view the progress of the role swap, from the Role Swap menu, use F24 (WRKACTJOB) to view the ODS400, OMS400, and VSIGPL subsystems as well as the subsystem in which you selected the jobs to run.

7. Press F5 (Refresh) to monitor the jobs in the various subsystems. If any job other than OMSJRNMGR has the status MSGW, you must correct the issue.

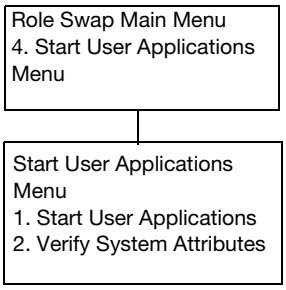
NOTE

The CHKVSISWAP job will not end until the role has been changed for both OMS/400 and ODS.

8. Once all the submitted jobs have finished, you can determine the status of the role swap by the system role, visible on any screen in the Advanced Role Swap Utility. The system role for the source system changes to target (see "Understanding the System Role" on page 21 for more information).
9. Do step 1 through step 7 on the target to perform the role swap on the target. When complete, the system role for the target changes to source (see "Understanding the System Role" on page 21 for more information).

Starting Applications on the New Source

Starting the user applications makes the new source system available to the users (see "Starting User Applications" on page 44). Once the applications are started on the new source system, verify the system attributes for your environment (see "Verifying System Attributes" on page 45).

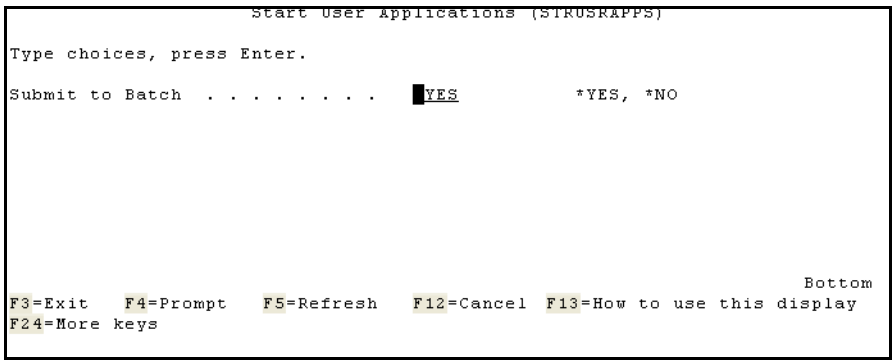

Role Swap Main Menu
4. Start User Applications Menu
Start User Applications Menu
1. Start User Applications
2. Verify System Attributes

Starting User Applications

User applications can be started on the new source and target systems once the role swap is complete.

1. From the Role Swap Main menu, select 4 (Start User Applications Menu), then press Enter to display the Start User Applications Menu screen.
2. Select 1 (Start User Applications), then press Enter.
3. Enter the password to start the user applications, then press Enter. The password is the same as the OMS/400 link IDs. All OMS/400 link IDs that will be role swapped must have the same password. If the passwords are not the same, an error displays. To change an OMS/400 link ID password, refer to the *VISION SUITE Enterprise Edition OMS/400 – Object Mirroring System Product Manual*.

The Start User Applications (STRUSRAPPS) screen displays.


Start User Applications (STRUSRAPPS)
Type choices, press Enter.
Submit to Batch . . . . . YES *YES, *NO
Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

4. In Submit to Batch, do one of the following:
   - Type *YES and press Enter to submit the process as a batch job, then enter the job queue in which you want the job to run.
   - Type *NO then press Enter to run the process interactively.

Verifying System Attributes

Once the role change process is complete and the applications have been restarted on the new source system, verify the system attributes for your environment on both the source and target systems (see "Verifying System Attributes" on page 17 to configure which attributes are displayed). The LSTSYSATRP file should already be set up with the list of commands that are executed during system attribute verification. The Advanced Role Swap Utility comes pre-defined with an example of the commands that could be run to display system information for visual verification.

1. From the Role Swap Main Menu screen, select 4 (Start User Applications Menu), then press Enter.

2. In the Start User Applications Menu screen, select option 2 (Verify System Attributes), then press Enter to display the Display Network Attributes screen.

```
                        Display Network Attributes
                                                              System:   28A
Current system name  . . . . . . . . . . . . . . . :   28A
  Pending system name  . . . . . . . . . . . . . . :
Local network ID . . . . . . . . . . . . . . . . . :   APPN
Local control point name . . . . . . . . . . . . . :   28A
Default local location . . . . . . . . . . . . . . :   28A
Default mode . . . . . . . . . . . . . . . . . . . :   BLANK
APPN node type . . . . . . . . . . . . . . . . . . :   *ENDNODE
Data compression . . . . . . . . . . . . . . . . . :   *NONE
Intermediate data compression  . . . . . . . . . . :   *NONE
Maximum number of intermediate sessions  . . . . . :   200
Route addition resistance  . . . . . . . . . . . . :   128
Server network ID/control point name . . . . . . . :   *LCLNETID   *ANY

                                                                          More...
Press Enter to continue.

F3=Exit    F12=Cancel
```

3. Press Enter to view the next screen. The screens that display and the information contained in the screens vary according to your installation. However, for each screen that displays, you must verify that the entries on each screen are correct, then press Enter to display the next screen. (For example, in the Work with Job Schedule Entries screen, verify that all jobs are on hold, then press Enter.)

4. When all screens have been verified, press F12 (Cancel) or Enter to return to the Role Swap Menu screen.

Messages

A

The following is a list of messages and message IDs found within the VSIARS utilities message file, MTTMSGF. If you have programs that monitor for messages related to conditions that may trigger an error or informational message, you can use the following tables to identify the message ID.

Message ID	Message Text
MTC0001	BLDOMSTRG completed normally.
MTC0002	Journal sequence numbers are current for all link IDs.
MTC0003	CHKLNKDFN completed normally.
MTC0004	There are no *ERROR transactions in ODS.
MTC0005	There are no *SEND, *WAITING, or *PENDING transactions in ODS
MTC0006	There are no OMS &1 objects.
MTC0007	CHKOPNCMT completed normally.
MTC0008	CHKSYSCMN completed normally.
MTC0009	CHKVSISWAP completed normally.
MTC0010	ENDS3 completed normally.
MTC0011	ODS updated to a &1 &2 system. Role swap capable updated to &3.
MTC0012	ODS sync check jobs submitted to the ODS400 subsystem.
MTC0013	OMS sync check job submitted to the OMS400 subsystem.
MTC0014	SBMPLM completed normally.
MTC0015	SBMSYNCHK completed normally.
MTC0016	SNDJRNU70 completed normally.
MTC0017	SNDODSCFG completed normally.

MTC0018	SNDPLMCFG completed normally.
MTC0019	STRMQRCDI completed normally.
MTC0020	STRVSICHK completed normally.
MTC0021	STRVSISWAP completed normally.
MTC0022	SWAPMQ completed normally.
MTC0023	Time elapsed for RCVMSG. Monitor ODSCHGROLE on the remote system
MTC0024	ODSCHGROLE completed successfully on the remote system.
MTC0025	OMSCHGROLE job submitted to jobq &1/&2. Check the status.
MTC0026	VFYJRNSTS completed normally.
MTC0027	TGTBKUP completed normally on the source system.
MTC0028	ENDUSRAPPS completed on the &1 system.
MTC0029	STRUSRAPPS completed on the &1 system.
MTC0030	ODSCHGROLE job submitted to jobq &1/&2. Check the status.
MTC0031	User request to end ODSCHGROLE due to pending transactions. ODS still a &1 &2 system
MTC0032	Data area USRAPPSTS changed to &1.
MTC0033	Data area &1 changed to &2/&3.
MTC0034	CHKIFSDFN completed normally.
MTC0035	CHKOMSOBJ completed normally.
MTC0036	ODS local system has been changed to &1 and the remote system to &2.
MTC0037	VSI Tools configured to library &1.
MTC0038	The ODS Role Swap Capable flag has been set to &1.
MTC0039	CFGPFMM completed for action &1.
MTC0040	The number of journaled objects for journal &2/&3 is &1.
MTC0041	Review QSYSPRT spool file for objects journaled, but not mirrored.
MTC0042	Job OMSBLDCSTX submitted to the OMS400 subsystem.
MTC0043	Job OMSJRNMNTX submitted to the OMS400 subsystem.
MTC9898	&1
MTE0001	Error calling remote command. Review job log and the GPS9022 job on the target.

MTE0002	*NOTCFG is set for the current environment.
MTE0003	&1 is an invalid environment.
MTE0004	&1 is an invalid link ID.
MTE0005	Link ID roles are *INCONSISTENT.
MTE0006	Only allowed on the Source system.
MTE0007	Communication link ID attributes are *INCONSISTENT.
MTE0008	Unable to communicate with remote system.
MTE0009	Remote program ERROR. Review job log for the GPS9022 on the target
MTE0010	ENDS3 ended abnormally.
MTE0011	ENDUSRJOB ended abnormally.
MTE0012	Error retrieving data area QGPL/VSILIB.
MTE0013	Error retrieving data area QGPL/ODS400.
MTE0014	Error retrieving data area *LIBL/ARSLIB.
MTE0015	Error changing library list.
MTE0016	Level check for display file.
MTE0017	Error with SNDLNKDFN. Review job log. See second level text.
MTE0018	OMS and ODS roles are *INCONSISTENT.
MTE0019	Program Error. Review Job Log.
MTE0020	Invalid password.
MTE0021	ODS is NOT role swap capable. Correct the ODS configuration an try your request again.
MTE0022	The ODS configuration must have “ODS400” as a configured message queue.
MTE0023	Unable to clear the &1 message queue.
MTE0024	Time elapsed for RCVMSG. Monitor ODSCHGROLE. Remote job NOT submitted.
MTE0025	ODSCHGROLE ended with ERRORS. Review Job Log.
MTE0026	Only allowed to execute TGTBKUP on the SOURCE system.
MTE0027	Unable to communicate via &1.
MTE0028	Exit program &1/&2 to start user application not found.
MTE0029	Exit program &1/&2 to end user application not found.
MTE0030	Exit program data area &1/&2 not configured.

MTE0031	Submit to remote only allowed from the SOURCE system.
MTE0032	User request to end ODSCHGROLE due to errors.
MTE0033	User request to end CHKVSISWAP. STRVSICHK not submitted to the remote system.
MTE0034	Error calling remote command. Review job log and the GPS9022 job on the target.
MTE0035	Maximum timeout value reached. SNDLNKDFN aborted. See second-level text.
MTE0036	Exit program &1/&2 not found.
MTE0037	There are OMS &1 inactive objects for link ID &2.
MTE0038	User request to end OMSCHGROLE for link ID &1.
MTE0039	Unable to allocate file &1/ODRSTSP.
MTE0040	There is no message queue configured for link ID &1.
MTE0041	There is no journal configuration for link ID &1.
MTE0042	Value *SAME is not valid when parameter ODRSWP = *YES.
MTE0043	User request to end target backup. TGTBKUP not submitted to the remote system.
MTE0044	Library &1 does not exist.
MTE0045	*NONE not allowed with &1. Specify a valid link ID.
MTE0046	MQ Queue Manager library &1 does not exist.
MTE0047	There are OMS &1 inactive objects for link ID &2.
MTE9898	&1
MTI0001	OMS role is *INCONSISTENT for link ID &1.
MTI0002	OMS remote system is *INCONSISTENT for link ID &1.
MTI0003	OMS send type in *INCONSISTENT for link ID &1.
MTI0004	OMS remote location is *INCONSISTENT for link ID &1.
MTI0005	OMS mode is *INCONSISTENT for link ID &1.
MTI0006	OMS remote IP is *INCONSISTENT for link ID &1.
MTI0007	OMS password is *INCONSISTENT for link ID &1.
MTI0008	OMS status is *INCONSISTENT for link ID &1.
MTI0009	SWAPODS received the ODSCHGROLE completion message.
MTI0010	STRVSISWAP is waiting for ENDUSRAPPS to complete.
MTI0011	ODSCHGROLE completed successfully on the remote system.

MTI0012	Time elapsed for RCVMSG. Monitor ODSCHGROLE.
MTI0013	SWAPODS received the ODSCHGROLE error message.
MTI0014	SWAPODS received the ODSCHGROLE completion message.
MTI0015	TGTBKUPMGR submitted to receive save-while-active message from TGTBKUP.
MTI0016	&1 received the save-while-active checkpoint message from the target backup.
MTI0017	Link ID &1 is ready for Target BackUp.
MTI0018	Target BackUp starting link ID &1.
MTI0019	OMS and ODS are not configured for the same role (SOURCE or TARGET)
MTS0001	Deleting all records for file MRTRGFP on the source system.
MTS0002	Deleting all records for file MRTRGFP on the target system.
MTS0003	Re-building the trigger maintenance file MRTRGFP for link &1.
MTS0004	Checking OMS journal sequence numbers for link ID &1.
MTS0005	Review the journal activity for link ID &1.
MTS0006	Comparing the total number of mirrored & *INACT objects for link ID &1.
MTS0007	The number of mirrored and/or *INACT objects DO NOT EQUAL for link ID &1.
MTS0008	The number of mirrored and/or *INACT objects EQUAL for link ID &1.
MTS0009	Review spool file QSYSPRT for OMS Mirrored Objects.
MTS0010	Checking the status for link ID &1.
MTS0011	Checking ODS for &1 transactions.
MTS0012	Review ODS transactions in *ERROR status.
MTS0013	Review ODS transactions in *SEND, *WAITING, or *PENDING status.
MTS0014	Checking OMS &1 QSYS objects for link ID &2.
MTS0015	Review OMS &1 QSYS objects for link ID &2.
MTS0016	Checking OMS &1 IFS objects for link ID &2.
MTS0017	Review OMS &1 IFS objects for link ID &2.
MTS0018	Checking OMS open commits for link ID &1.
MTS0019	OPEN COMMITS ARE FOUND for link ID &1.
MTS0020	There are NO open commits for link ID &1.

MTS0021	Review spool file QSYSPRT for OMS Open Commits.
MTS0022	Retrieving link ID communication attributes.
MTS0023	Checking communication with remote system &1.
MTS0024	Communication verified with remote system &1.
MTS0025	OMS is ready to be a &1 system.
MTS0026	ODS is ready to be a &1 system.
MTS0027	Vision Suite is ready to be a &1 system.
MTS0028	Ending the auto sync check job for link ID &1.
MTS0029	Creating a list of ODS paths.
MTS0030	Submitting ODS sync check for path &1.
MTS0031	Initializing file MRSERRP for *SAMPLE sync check.
MTS0032	Updating file MRSERRP for *ERROR sample sync check.
MTS0033	Submitting OMS *SAMPLE sync check for link ID &1.
MTS0034	Submitting OMS sync check *ERROR for link ID &1.
MTS0035	Submitting the PLM for link ID &1.
MTS0036	Sending journal entry U70 for link ID &1.
MTS0037	Ending OMS on the target system for link ID &1.
MTS0038	Waiting for the OMS jobs to end. Delaying job for 10 seconds.
MTS0039	Preparing to send link definition file MRMOBJP for link ID &1.
MTS0040	Unable to send link definition file MRMOBJP for link ID &1.
MTS0041	Starting OMS on the target for link ID &1.
MTS0042	File linklibrary/MRMOBJP for link ID &1 sent to the target system.
MTS0043	Sending ODS configuration files to the target system.
MTS0044	Sending PLM monitor and exclusion file for link ID &1.
MTS0045	Starting VSIRCDMQM for link &1.
MTS0046	MQ Queue Manager &1 is not active.
MTS0047	Checking system role.
MTS0048	Submitting CHKVSISWAP job. Job will check for new &1 system.
MTS0049	Submitting STRVSISWAP for remote system &1.
MTS0050	Rebuilding MQ queues for link ID &1.
MTS0051	Recording MQ object image for link &1.

MTS0052	Submitting ODSCHGROLE for the local system.
MTS0053	Receiving the ODSCHGROLE messages.
MTS0054	Clearing the &1 message queue on the remote system.
MTS0055	Submitting OMSCHGROLE to the local system.
MTS0056	Retrieving the status of the ODSCHGROLE from the remote system.
MTS0057	Submitting OMSCHGROLE job *BCHIMMED for link ID &1.
MTS0058	Submitting OMSCHGROLE for link ID &1 to the remote system.
MTS0059	Starting OMSCHGROLE job *BCHCNTRLD for link ID &1.
MTS0060	Retrieving a list of journal objects for link ID &1.
MTS0061	Starting the journal verification process for link ID &1.
MTS0062	Submitting the TGTBKUP job on the remote system.
MTS0063	Ending ODS.
MTS0064	Adding the save journal entry and end the apply jobs for link ID &1.
MTS0065	Ending User Applications on the &1 system.
MTS0066	Starting User Applications on the &1 system.
MTS0067	CHKSYSCMN - Starting @ time &1.
MTS0068	CHKSYSCMN - Completed @ time &1.
MTS0069	CHKLNKDFN - Starting @ time &1.
MTS0070	CHKLNKDFN - Completed @ time &1
MTS0071	CHKOPNCMT - Starting @ time &1.
MTS0072	CHKOPNCMT - Completed @ time &1.
MTS0073	VFYJRNSTS - Starting @ time &1.
MTS0074	Submitting job VFYJRNSTS to the target system.
MTS0075	Review the MRR330 report on the target system.
MTS0076	VFYJRNSTS - Completed @ time &1.
MTS0077	BLDOMSTRG - Starting @ time &1.
MTS0078	BLDOMSTRG - Completed @ time &1.
MTS0079	ENDS3 - Starting @ time &1.
MTS0080	ENDS3 - Completed @ time &1.

MTS0081	SYNCHKTYPE *SAMPLE - Starting @ time &1.
MTS0082	SYNCHKTYPE *SAMPLE - Completed @ time &1.
MTS0083	SYNCHKTYPE *ERROR - Starting @ time &1.
MTS0084	SYNCHKTYPE *ERROR - Completed @ time &1.
MTS0085	ODSSYNCHK - Starting @ time &1.
MTS0086	ODSSYNCHK - Completed @ time &1.
MTS0087	STRMQRCDI - Starting @ time &1.
MTS0088	STRMQRCDI - Completed @ time &1.
MTS0089	SNDPLMCFG - Starting @ time &1.
MTS0090	SNDPLMCFG - Completed @ time &1.
MTS0091	SNDODSCFG - Starting @ time &1.
MTS0092	SNDODSCFG - Completed @ time &1.
MTS0093	CHKODSOBJ - Starting @ time &1.
MTS0094	CHKODSOBJ - Completed @ time &1.
MTS0095	CHKODSOBJ - Starting @ time &1.
MTS0096	CHKODSOBJ - Completed @ time &1.
MTS0097	CHKOMSOBJ - Starting @ time &1.
MTS0098	CHKOMSOBJ - Completed @ time &1.
MTS0099	SNDJRNU70 - Starting @ time &1.
MTS0100	SNDJRNU70 - Completed @ time &1.
MTS0101	CHKJRNSEQ - Starting @ time &1.
MTS0102	CHKJRNSEQ - Completed @ time &1.
MTS0103	Submitting STRVSISWAP to job queue &1/&2.
MTS0104	Review the VSI Check Status report.
MTS0105	Checking &1 communication with the remote system.
MTS0106	There are no *INACT &1 objects.
MTS0107	Calling exit program &1/&2.
MTS0108	Check the batch jobs in the OMS400 subsystem.
MTS0109	Submit to remote requested. Checking communication.
MTS0110	Incomplete ODS transactions found. Determine cause. Either remove, re-send or wait until all transactions have been
MTS0111	User request to continue with ODSCHGROLE after incomplete transactions were found.

MTS0112	Check the batch jobs in the ODS400 subsystem.
MTS0113	Comparing the total number of mirrored IFS for link ID &1.
MTS0114	The number of mirrored IFS DO NOT EQUAL for link ID &1.
MTS0115	Review spool file QSYSPRT for OMS Mirrored IFS.
MTS0116	The number of mirrored IFS EQUAL for link ID &1.
MTS0117	Error submitting the Role Swap User Exit Job.
MTS0118	Checking the status of the sync check error job(s).
MTS0119	Waiting for the sync check error job(s) to end.
MTS0120	Active records found in OMS400SYS/MRSERRP. Check for object locks.
MTS0121	Printing Sync Check Error report. View spool file MRP261 in the OMS400 output queue.
MTS0122	Link ID &1 is not a *JRN link. Check configuration file LSTMQMGRP.
MTS0123	&1 is an invalid link ID for MQ Queue Manager &2.
MTS0124	There is an inactive MQ Queue Manager.
MTS0125	There is an invalid link ID configured for a MQ Queue Manager.
MTS0126	The PLM configuration files linklibrary/MRLMONP and MREXCLP have copied to the remote system.
MTS0127	The ODS configuration files ODS400/ODOBJSP, ODPTIMP, and ODPMST have been copied to the remote system.
MTS0128	Ending the TCP/IP interfaces for the &1 system.
MTS0129	Ending line descriptions for the &1 system.
MTS0130	Ending controller descriptions for the &1 system.
MTS0131	Starting the TCP/IP interfaces for the &1 system.
MTS0132	Starting the line descriptions for the &1 system.
MTS0133	Starting controller descriptions for the &1 system.
MTS0134	Submitting the journal verification process for link ID &1.
MTS0135	Submitting &1 to job queue &2/&3.
MTS0136	Check the batch job using WRKACTJOB.
MTS0137	Starting TCP/IP servers for the &1 system.
MTS0138	Starting Host servers for the &1 system.
MTS0139	Ending TCP/IP servers for the &1 system.
MTS0140	Ending Host servers for the &1 system.

MTS0141	Error executing user command for sequence number &1.
MTS0142	Creating a list of all &1.
MTS0143	Processing. Standby...
MTS0144	Unable to start journaling for file &1 in library &2.
MTS0145	Unable to end journaling for file &1 in library &2.
MTS0146	Retrieving a list of journaled objects for journal &1/&2.
MTS0147	Submitting job TGTBKUP to the local system.
MTS0148	Error ending TCP/IP interface &1.
MTS0149	Error changing TCP/IP interface &1.
MTS0150	Error varying off line description &1.
MTS0151	Error varying off controller description &1.
MTS0152	Error ending subsystem &1.
MTS0153	Submitting job SAVSYSATR.
MTS0154	Error starting TCP/IP interface &1.
MTS0155	Error varying on line description &1.
MTS0156	Error varying on controller description &1.
MTS0157	Error starting subsystem &1.
MTS0158	Ending subsystems for the &1 system.
MTS0159	Starting subsystems for the &1 system.
MTS9898	&1

Resolving Pre-Check Errors

B

This section outlines the basic steps for resolving program errors.

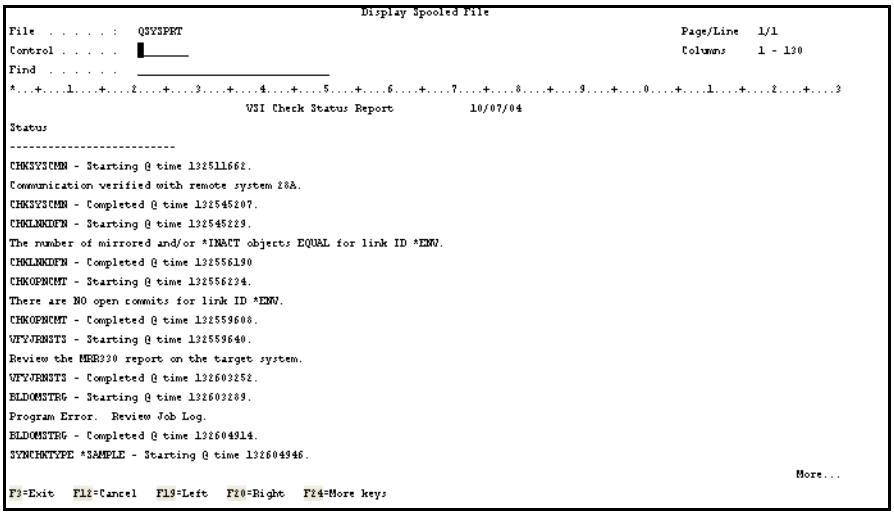
1. From the Role Swap Main menu, select 1 (Pre-Role Swap Menu), then press Enter to display the Pre-Role Swap menu.
2. From the Pre-Role Swap menu, select option 2 (Display Pre-Role Swap Reports), then press Enter.

```
                          Work with All Spooled Files

Type options, press Enter.
  1=Send   2=Change   3=Hold   4=Delete   5=Display   6=Release   7=Messages
  8=Attributes        9=Work with printing status


                                Device or                          Total    Cur
Opt  File         User          Queue        User Data   Sts     Pages   Page  Copy
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
 _   QSYSPRT      OMS400        ROLESWAP     MTTR16      RDY         1              1
                                                                                More...
Parameters for options 1, 2, 3 or command
===>
F3=Exit    F10=View 4    F11=View 2    F12=Cancel    F22=Printers    F24=More keys
```

3. Locate the most recent QSYSPRT spool file with user data MTTR16, select option 5 (Display) to display the QSYSPRT spool file, then press Enter.


Display Spooled File
File . . . . . : QSYSPRT
Page/Line 1/1
Control . . . . . _____
Columns 1 - 130
Find . . . . . _____
VSI Check Status Report 10/07/04
Status
CHKSYSCMN - Starting @ time 132511662.
Communication verified with remote system 28A.
CHKSYSCMN - Completed @ time 132545207.
CHKLNKDFN - Starting @ time 132545229.
The number of mirrored and/or *INACT objects EQUAL for link ID *ENV.
CHKLNKDFN - Completed @ time 132556190
CHKOPNCMT - Starting @ time 132556234.
There are NO open commits for link ID *ENV.
CHKOPNCMT - Completed @ time 132559608.
VFYJRNSTS - Starting @ time 132559640.
Review the MRR330 report on the target system.
VFYJRNSTS - Completed @ time 132603252.
BLDOMSTRG - Starting @ time 132603289.
Program Error. Review Job Log.
BLDOMSTRG - Completed @ time 132604914.
SYNCHKTYPE *SAMPLE - Starting @ time 132604946.
More...
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys

4. For each task in error, note the task keyword displayed in all caps.
5. Press Enter to return to the Pre-Role Swap menu.
6. Press F10 (View 4) to display the job log, and then determine the error.
7. After diagnosing the error, correct the error, and return to the Pre-Role Swap menu.
8. Select option 1 (Start Pre-Role Swap), type the password, then press F11 (Keywords) to view the command keywords.
9. Type *YES to execute a task again or *NO to skip running the task again. You can re-run other tasks that do not pertain to the error.

NOTE

If needed, the pre-role swap can be executed multiple times.

Report Samples

C

Checking Link Definitions

Using the Check Link Definition option (CHKLNKDFN), you can compare the total number of mirrored and inactive objects for a link between the source and test systems. If the total number of mirrored and inactive objects for each link ID are not equal, the QSYSPRT spool file is created to summarize the totals. (If the total number of mirrored and inactive objects are equal, no spool file is created.) Using OMS/400 Object Status to investigate on both the source and target systems can help identify issues. If you are unable to resolve the issues, contact Vision Solutions CustomerCare.

```
                          Display Spooled File
      File . . . . . :   QSYSPRT              Page/Line   1/1
      Control . . . . .                       Columns     1 - 78
      Find  . . . . . .
      *..+..1..+..2..+..3...+...4...+...5...+...6...+...7...+..

                          OMS Mirrored Objects             6/19/
Role  Link ID Number of Mirrored Objects Number of Inactive Objects
----  ------- ------------------------- ----------------------
SOURCE TST001A  0000000018                 00000
TARGET TST001A  0000000018                 00001
SOURCE TST002A  0000000003                 00000
TARGET TST002A  0000000002                 00000

                                                           Bottom

      F3=Exit   F12=Cancel   F19=Left   F20=Right   F24=More keys
```

For example, in the screenshot above, the report shows that there is a discrepancy for link ID TST001A and TST002A. Link ID TST001A on the target system has one more inactive object than the source system. And for link ID TST002A, the target system has one less mirrored object than the source system. In each case, you must manually check why the totals do not match. Use OMS/400 Object Status to help investigate the differences.

Checking OMS/400 Open Commits

You can retrieve the number of records from logical file MRCCIDLB on the target system for the link library being processed using the Check Open Commits command (CHKOPNCMT). The logical file points to records in MRCCIDP that have a status of A. A status of A indicates that OMS/400 has not received the end commit transaction. Therefore, user spaces are retained and the time to complete an OMS/400 Change Role is affected because all the user spaces are being copied to the OMS/400 product library and searched in order to rollback uncommitted transactions. If the application is active on the source system, the open commits may be valid. If the target system link ID has open commits, the QSYSPRT spool file is created to summarize the finding. If no open commits exist, CHKOPNCMT completed normally displays below the command line.

```
                          Display Spooled File
File  . . . . . :   QSYSPRT                 Page/Line   1/1
Control . . . . .                           Columns     1 - 78
Find  . . . . . .
*..+...1...+...2...+...3...+...4...+...5...+...6...+...7...+..

                           OMS Open Commits                 6/23/
Link ID   Target  Link Library    Number of User Spaces
-------   --------------------    ---------------------
TST001A   OMSSYS0001              0000000005

                                                           Bottom
F3=Exit   F12=Cancel   F19=Left   F20=Right   F24=More keys
```

The sample report above indicates that OMS/400 has yet to receive the close commit transaction from the source system.

Verifying Journal Status

The command Verify Journal Status (VFYJRNSTS) is run from the source system and verifies that all mirrored objects are journaled on the target. Journal verification verifies that all files are journaled to the correct journal associated to the link ID being processed. If a file is not journaled to the correct journal or is not journaled, the job attempts to start journaling. The job creates the QPRINT spool file in the ROLESWAP out queue with user data MRR330. Review this report on the target system to ensure that all files are journaled. Entries with the word ERROR indicate an issue while attempting to start journaling. If an error is found, you must correct the issue prior to the role swap. Check object allocation and re-run the VFYJRNSTS command on the target system. This report is the same report that gets spooled during the actual change role for an OMS/400 link ID.

```
                          Display Spooled File
File  . . . . . :   QPRINT                        Page/Line   1/2
Control . . . . .                                 Columns     1 - 78
Find  . . . . . .
*..+...1...+...2...+...3...+...4...+...5...+...6...+...7...+.. MRR330

                                   OBJECT MIRRORING SYSTEM
LINK ID: TST001A                CURRENT STATUS OF MIRRORED OBJECTS
JOURNALING ON TARGET . . . . .: *YES
TARGET JOURNAL NAME  . . . . .: AJRNLIB/TST001A
LAST SEQUENCE NUMBER RECEIVED AND APPLIED:     483044
LIBRARY   OBJECT     TEXT                           TYPE HLD DATE END DATE
VSIARS    CURENV     Vision Solutions, Inc. Tools   DTAA
          ENDEXTCFG  Vision Solutions, Inc. Tools   DTAA
          ENVCFGP    Vision Solutions, Inc. Tools   FILE
          ENVMSTP    Vision Solutions, Inc. Tools   FILE
          EVFEVENT                                  FILE
          LSTACTJOBP Vision Solutions, Inc. Tools   FILE
          LSTMRROBJP Vision Solutions, Inc. Tools   FILE
          LSTOPNCMTP Vision Solutions, Inc. Tools   FILE
          LSTVSICHKP Vision Solutions, Inc. Tools   FILE
          MTTCLSRC   Vision Solutions, Inc. Tools   FILE
                                                                  More...
      F3=Exit    F12=Cancel    F19=Left    F20=Right    F24=More keys
```

Role Swap Commands

D

Overview

This appendix includes the syntax and descriptive material for the role swap commands found in the VSIARS library.

The commands are listed in alphabetical order. Most commands can be executed from any command line within OMS/400 or can be used in CL programs. The following commands are only valid in CL programs and cannot be directly used from a command line:

- CHKLNKSTS (see page 72)
- ISJOBACT (see page 82)
- RTVLNKID (see page 85)
- RTVODSINF (see page 86)
- RTVODSSTS (see page 88)
- RTVOMSINF (see page 90)
- RTVOMSPWD (see page 92)
- RTVOSINF (see page 86)

BLDOMSTRG (Build OMS/400 Trigger Definitions)

Rebuilds the OMS/400 trigger maintenance file on both the source and target systems, based on the physical files that have triggers and are selected for an OMS/400 link. First, it deletes all records in file MRTRGFP on the source system. Second, it executes VSIRMTCMD to send a remote command to the target system to delete all the records in file MRTRGFP on the target system. Last, for each link defined to OMS, it executes OMSVFYTRG to examine all physical files to determine what triggers are attached to them. If a trigger definition is found, then the command OMSVFYTRG adds a record to file MRTRGFP on the source and target system.

Required Parameters

None

CFGODSSWP (Configure ODS/400 Role Swap)

Enables you to modify the following value associated with a role swap of ODS:

- Local system name
- Remote system name
- Local system role
- Local system status

You can also force ODS/400 to be role swap capable with this command. When this command is run on one system, it should also be run on the other system in order to complete the relationship between the systems. Contact Vision Solutions before using this command.

Required Parameters

Parameter	Description
ODRSWP	*YES – Forces ODS/400 to be role swap capable. *NO – Does not force ODS/400 to be role swap capable.
ODLSYS	Name – The name of the local system. *SAME – Ignore indicator to the program. Will not perform any action. Only valid when ODRSWP is *NO.
ODRSYS	Name – The name of the remote system. *SAME – Ignore indicator to the program. Will not perform any action. Only valid when ODRSWP is *NO.
ODLROL	SOURCE – The role of the current system to which to change ODS. TARGET – The role of the current system to which to change ODS. *SAME – Ignore indicator to the program. Will not perform any action. Only valid when ODRSWP is *NO.
ODLSTS	NORMAL – The status of the current system you wish ODS/400 to be changed to. REVERSED – The status of the current system you wish ODS/400 to be changed to. *SAME – Ignore indicator to the program. Will not perform any action. Only valid when ODRSWP is *NO.

CHGAPPSTS (Change Application Status)

Indicates the status of the user applications during a role swap. The application status is displayed on the Role Swap Main menu and can be viewed at any time during the actual role swap. To change the status, the data area USRAPPSTS, which is not associated with the application, stores the actual status, which is then displayed on the Role Swap main menu. You can use the command multiple times within the exit program to indicate the progress of the application switching and its status or state. This status can then be used to determine if the application has actually switched and is available for use.

Required Parameters

Parameter	Description
APPSTS	*ACTIVE – Application is active. *ACTPEND – The application is starting. *INACTIVE – Application has been ended. *INACTPEND – Application is ending. *NOTAVAIL – Status unknown.

CHGEXTCFG (Change Exit Configuration)

Changes the user exit program for STRUSRAPPS, ENDUSRAPPS, or RSEXTCFG.

Changes the name of the user exit programs stored in the Advanced Role Swap Utility. Two different data areas store the program name and program library: STRUSRAPPS and RSEXTCFG. These exit points are supplied with the role swap process and do not have to be used to start or end user applications.

Required Parameters

Parameter	Description
USREXT	STREXTCFG – Changes the data area STREXTCFG to update the value for the exit program name and library. Program STRUSRAPPS will retrieve the value and call the program. ENDEXTCFG – Changes the data area ENDEXTCFG to update the value for the exit program name and library. The program ENDUSRAPPS retrieves the value and calls the program. RSEXTCFG – Changes the data area RSEXTCFG to update the value for the exit program name and library. The program CHKVSISWAP retrieves the value and submits the job RSUSREXT to call the exit program. Position (1 10) = program name. Position (11 10) = library name.
EXTPGM	Program Name/Library – The program name and library that ends or starts your application. *NONE – Changes the data area to the value *NONE for the program, library, and user exit parameter.
USREXTPARM	*SAME – User exit parameters are not updated. The current value in the data area is retained. User Exit Parameter – A character string up to 1024 bytes to pass to the exit program. Position (51 1024) = user exit parameter. For STREXTCFG, the first position will determine if the IPL start up program will be called. Value Y or N.

CHKJRNSEQ (Check Journal Sequence Numbers)

This command is part of the role swap process. It retrieves the journal sequence numbers for all jobs configured to an OMS/400 link ID and, if any of the jobs do not equal the local journal sequence number, the OMS/400 System Activity screen displays.

NOTE

If the OMS/400 System Activity screen is prompted, the F3, F12, or the ENTER key displays the next link or the command ends.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 are processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – The environment name is retrieved from the CURENV data area. The environment name is used to select link IDs to be processed.

CHKJRNSEQ Prompt Screen

If there are in-flight transactions during pre-role swap, the OMS/400 System Status screen displays.

```
Date  MM/DD/YY            System Activity Display              Time:   12:30:39
 Link: TST002A                                                  System: VISION
 Refresh Seconds:   5

 Role: SOURCE    Config: NORMAL   Inact Objs:          Elapsed Time:      :00

 SOURCE SYSTEM   Status   Sequence £  Diff/Trans    Date     Time     Trns/Hr
 Journal                       8653               MM/DD/YY 12:30:39

 TARGET SYSTEM
 Remote Journal  *ACTIVE       8653               MM/DD/YY 12:30:39
 Reader          *ACTIVE       8652            1  MM/DD/YY 12:28:39
                                     ----------            --------
 Sending Lag                                                   :00

 Router          *ACTIVE       8649               MM/DD/YY 12:28:39
 Apply T1        *ACTIVE       8649            4  MM/DD/YY 12:28:39


 F3=Exit  F5=Refresh  F9=System command  F10=Restart  F12=Cancel  F17=Start OMS
 F18=End OMS  F19=Automatic Refresh  F23=WRKACTJOB
                           (c) Copyright Vision Solutions 1988,2003 - 810000
```

CHKLNKDFN (Check Link Definitions)

Compares the total number of mirrored objects defined to a link and inactive objects for each link between the source and target systems. If the values for either category are not equal for a link ID, the spool file QSYSPRT is created to list the differences. (If no mismatches are found, QSYPRT is not created.) If the link ID is current and a mismatch still occurs, the user must resolve the differences. Use OMS/400 Object Status for QSYS and/or IFS on source and target to help determine the differences.

NOTE

If the link ID is not current, a difference may be present so no action should be taken until the link ID is current.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 are processed.
ENV	Environment name – Selects the link IDs to be processed using the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.

Sample Report

In the following sample report, the report indicates that link ID TST001A on the target system has one inactive object. For link ID TST002A, the source system has three mirrored objects defined to the link ID, whereas the target system two mirrored objects defined.

In each case, the user must investigate why the totals do not match and take the appropriate corrective actions. Use OMS/400 Object Status to help investigate the differences.

```
                              Display Spooled File
File  . . . . . :   QSYSPRT                          Page/Line   1/1
Control . . . . .                                    Columns     1 - 78
Find  . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
                                        OMS Mirrored Objects             6/19/
Role   Link ID  Number of Mirrored Objects  Number of Inactive Objects
-----  -------  -------------------------  -------------------------
SOURCE TST001A  0000000018                 00000
TARGET TST001A  0000000018                 00001
SOURCE TST002A  0000000003                 00000
TARGET TST002A  0000000002                 00000









                                                                        Bottom
F3=Exit    F12=Cancel    F19=Left    F20=Right    F24=More keys
```

CHKLNKSTS (Check Link Status)

This command is only for use in a CL program. CHKLNKSTS retrieves the status of an OMS/400 link ID based on the specified parameters.

For example, if you wish to check for inactive jobs for a link ID on the target system, specify the following command syntax in a CL program.

```
CHKLNKSTS LNKID(link ID) LNKSTS(*INACTIVE) SYS-
TEM(TARGET) YESORNO(&YN)
```

Required Parameters

Parameter	Description
LNKID	Link ID-name – The link ID on which journal sequence numbers is checked.
LNKSTS	*INACTIVE – Checks for inactive jobs. *ACTIVE – Checks for active jobs.
SYSTEM	SOURCE – Checks the link ID on the source system for *INACTIVE or *ACTIVE jobs. TARGET – Checks the link ID on the target system for *INACTIVE or *ACTIVE jobs. *BOTH – Checks the link ID on the source and target system for *INACTIVE or *ACTIVE jobs.

Return Values

Check Status	Description
YESORNO	Is the link ID active or inactive. • *YES – The link ID on the target system is inactive. • *NO – The link ID on the target system is active.

CHKODSOBJ (Check ODS/400 Object Transaction)

Displays ODS/400 transactions that are in *ERROR or *PROCESSING status. The transactions are located by searching the ODS/400 transaction file ODOTRNP for records with either status. If errors or processing transactions with the specified status are found, the ODS/400 Object Status screen displays. All transactions for the requested status are displayed. This command can only be run interactively.

NOTE

If the ODS/400 Object Status display is prompted, then the F3, F12, or ENTER keys end the command.

Required Parameters

Parameter	Description
STATUS	*ERROR – Searches for all transactions that have a status of 'E' in the ODOTRNP file. *PROCESS – Searches for any transaction with a status of "P", "S" or "W" in the ODOTRNP file. If transactions are found, the ODSOBJSTS command displays the following ODS/400 statuses: • *SEND • *WAITING • *PROCESSING

If there are error or processing transactions in ODS, the ODS/400 Object Status screen appears.

```
Date: MM/DD/YY                 Object Status                  Time:   14:00:46
                  System Role: SOURCE Status: NORMAL          System: VISION
 Position to:
 Library/Path.                                               Errors. . .      2
 Object. . . .                                               Waiting . .
                                                             Processing.      1
 Type Options, press Enter.                                  Current . .      7
   1=Send Object  4=Remove  5=Display Detail

 Opt Object       Library                Type     Attribute  Rmt Sys  Status
     Q1           VSITEST                *OUTQ               VISIONB  *ERROR
     JOBD1        VSITEST                *JOBD               VISIONB  *ERROR
     AUTL1        QSYS                   *AUTL               VISIONB  *WAITING
     P1           VSITEST                *FILE    PF         VISIONB  *PENDING









 F3=Exit  F5=Refresh  F6=Print  F9=SystemCmd  F11=View 2  F12=Cancel
 F13=Repeat  F15=Spool  F17=Subset  F23=Work with ODS Jobs

 This is a subsetted list; QRPLOBJ objects are suppressed.
```

CHKOMSOBJ (Check OMS/400 Objects)

Displays OMS/400 objects in *INACT status for QSYS and IFS file systems in the OMS/400 Object Status screen displays for the user. This command can only be run interactively.

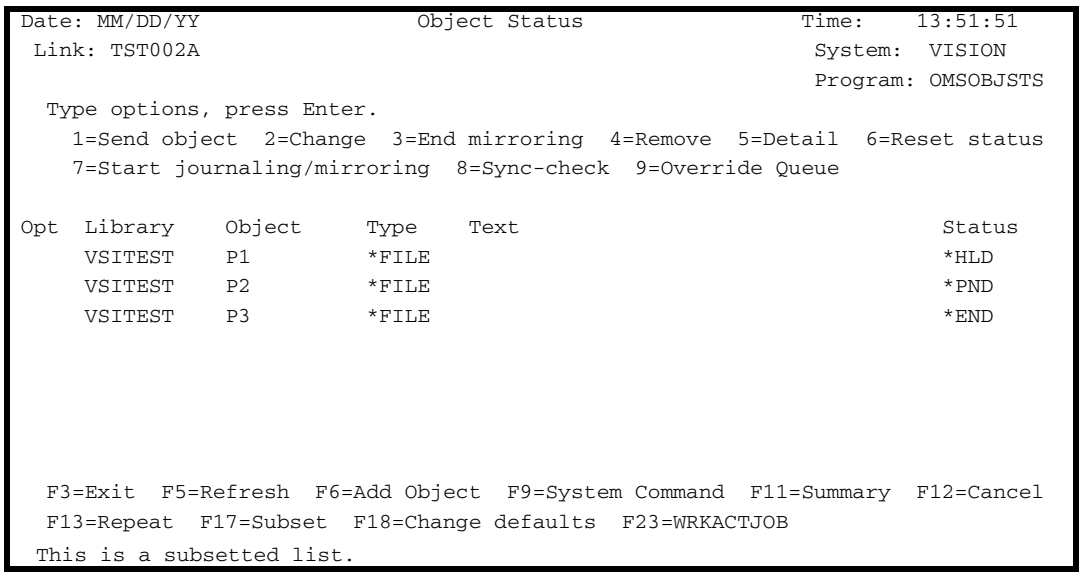
NOTE

If the OMS/400 Object Status screen is prompted, the F3, F12, or ENTER key displays the next link ID or the command end.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieve the environment name from the CURENV data area. The environment name is used to select link IDs to process.
STATUS	*INACT – If inactive objects are found, then the OMSOBJSTS command is used to display the subset of inactive objects. If inactive objects are found, the OMSOBJSTS command displays the following statuses: • *PND • *HLD • *END

If there are inactive objects in a OMS/400 link ID, the OMS/400 Object Status screen displays.


Date: MM/DD/YY Object Status Time: 13:51:51
Link: TST002A System: VISION
Program: OMSOBJSTS
Type options, press Enter.
1=Send object 2=Change 3=End mirroring 4=Remove 5=Detail 6=Reset status
7=Start journaling/mirroring 8=Sync-check 9=Override Queue
Opt Library Object Type Text Status
VSITEST P1 *FILE *HLD
VSITEST P2 *FILE *PND
VSITEST P3 *FILE *END
F3=Exit F5=Refresh F6=Add Object F9=System Command F11=Summary F12=Cancel
F13=Repeat F17=Subset F18=Change defaults F23=WRKACTJOB
This is a subsetted list.

CHKOPNCMT (Check OMS/400 Open Commits)

Identifies the OMS/400 link IDs on the target system that have open commits. A record found in the file MRCCIDLB indicates that OMS/400 has not received the end commit transaction from the application on the source system.

A report lists the OMS/400 link IDs that have open commits and the number of user spaces in the link ID library on the target system.

NOTE

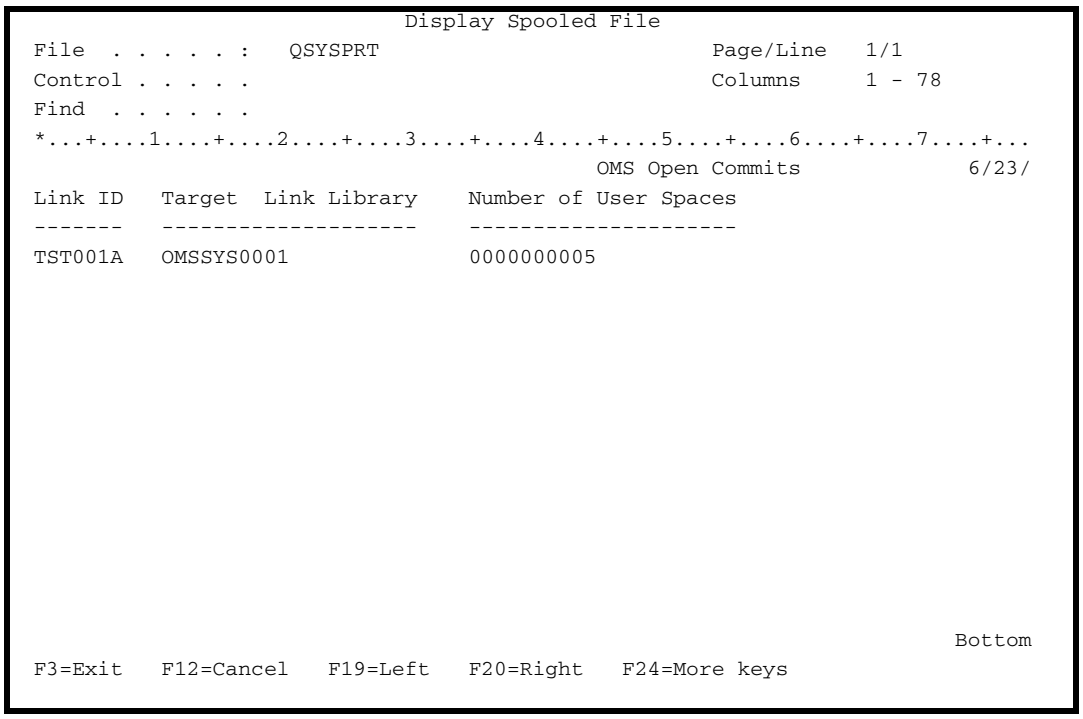
We recommend that you run the command when the application that may have open commits on the source system has been quiesced. Running the command while the application is active may identify a large number of user spaces and this may be normal.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 are processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name selects the link IDs to process.

Sample Report

In the example below, the report indicates that link ID TST001A on the target system has yet to receive close commit transaction from the source system. Therefore, OMS/400 thinks open commits exist and there are five user spaces in the link library OMSSYS0001.


Display Spooled File
File . . . . . : QSYSPRT
Page/Line 1/1
Control . . . . .
Columns 1 - 78
Find . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
OMS Open Commits 6/23/
Link ID Target Link Library Number of User Spaces
TST001A OMSSYS0001 0000000005
Bottom
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys

CHKSYSCMN (Check System Communication)

Verifies that the specified communications are active and that the specified communication configuration attributes match between the source and target systems. If multiple link IDs are requested to be checked, all communication attributes are compared. If one of the link IDs are inconsistent, the command ends with an error. A link ID is inconsistent if it does not match the role of other link IDs in the group. The attribute must be corrected and the command run again.

Communication test: PING, remote program call to the LISTENER2 job, and FTP or DDM.

Communication attributes that are compared: Remote System, Remote Location, Communication Protocol, Mode, Remote IP or DNS name.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 are processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name selects the link IDs to be processed.
CHKFTPDDM	*YES – Use VSIRMTCPYF to test FTP or DDM communication. The data area VSIUSEFTP in the OMS400 library determines whether to use FTP or DDM. The value Y = FTP. The value N = DDM. *NO – Do not check FTP or DDM communication.

ENDS3 (End S3)

Ends the Auto Syncheck job associated with an OMS/400 link ID.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 are processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name selectsthe link IDs to be processed.

ENDUSRAPPS (End User Applications)

Retrieves the user exit programs that end subsystems, jobs, and communication for the specified role. The exit program name and library are stored in the ENDEXTCFG data areas. Use the command CHGEXTCFG to configure the exit program names and libraries.

Required Parameters

Parameter	Description
ROLE	SOURCE – Ends the required subsystems, jobs, and communication for the current source system. TARGET – Ends the required subsystems, jobs, and communication for the current target system.
PASSWORD	The password is the value of the ARSLIB data area.
BATCH	*YES – Submits the job ENDUSRAPPS to the specified job queue. The parameter JOBQ is displayed for input. This is the default. *NO – Executes the program interactively.
JOBQ	*LIBL/QCTL – If the BATCH parameter is *YES, then the JOBQ parameter is displayed for input. Job QueueLibrary/Name – The job ENDUSRAPPS will be active in the subsystem that is associated with job queue specified.
USREXTPARM	*EXTCFG – The value stored in the ENDEXTCFG in position 51-1024 is passed to the user exit program. User Exit Parameter – A character string up to 1024 bytes. The character string will be passed to the user exit program.

ISJOBACT (Is Job Active)

ISJOBACT is only for use in a CL program. It determines if the specified job name is active or inactive. For example, if you wish to determine if the LISTENER2 job is active, specify the following command syntax in a CL program.

```
ISJOBACT JOBNAME(lisetner2) YESORNO(&YN)
```

The parameter YESORNO returns the value *YES or *NO. If *YES is returned, the LISTENER2 job is active. If *NO is returned, the LISTENER2 job is inactive.

Required Parameters

Parameter	Description
JOBNAME	Job name to check for active or inactive.

Return Values

Check Status	Description
YESORNO	Whether the job name active or inactive. *YES – The job name is active. *NO – The job name is inactive.

LSTACTJOB (List Active Jobs)

Lists the active jobs in a physical file created in QTEMP/LSTACTJOBP. The file provides the job name/job user/job number.

Required Parameters

Parameter	Description
JOBNAME	Job Name – Active job name to list. *ALL – All jobs that are active for the specified user profile will list job name/job user/job number.
JOBUSER	Job User – User profile to list. *ALL – All user profiles that have an active job will list job name/job user/job number.

ROLESWAP (Role Swap)

Provides access to the Role Swap menu system to execute a role swap (see "Performing a Role Swap" on page 25 for more information on using the role swap menu system).

Required Parameters

None

RTVLNKID (Retrieve Link ID)

Retrieves an OMS/400 link ID for the specified type *LNK or *ENV. It is only for use in a CL program. For example, if you wish to retrieve a link ID for an environment, specify the following command syntax in a CL program.

```
RTVLNKID TYPE(*ENV) ENV(environment name)
RTNLNKID(&LNKID)
```

The parameter RTNLNKID returns a valid link ID that is configured for the environment name specified.

Required Parameters

Parameter	Description
TYPE	*LNK – Returns the first record read in MRMMSTP in the OMS400 library. *ENV – Returns the first record read that is configured to the environment name specified. The ENV parameters displays.
ENV	Environment name – The environment name on which an OMS/400 link ID is returned. *CURENV – Returns the environment name stored in the CURENV data area and an OMS/400 link ID configured to the current environment.

Return Values

Check Status	Description
RTNLNKID	OMS/400 link ID-name – A valid OMS/400 link ID. *NOTCFG – If *ENV is specified for the type and a link ID was not found, *NOTCFG is returned.

RTVODSINF (Retrieve ODS/400 Information)

Retrieves certain ODS/400 configuration attributes and returns them to the calling program. This command is only for use in a CL program. For example, to retrieve the local role of ODS, specify the following command syntax in a CL program.

```
RTVODSINF ODLROL(&ODSROLE)
```

The parameter ODLROL returns SOURCE, TARGET, or *NONE.

Return Values

Parameter	Description
ODRSWP	Y – ODS/400 is role swap capable. N – ODS/400 is not role swap capable.
ODSPWD	Return the ODS/400 password.
ODQUE1	ODS Message Queue #1 – Return the ODS/400 message queue #1 *NONE – ODS/400 is not configured for message queue in field number one.
ODQUE2	ODS Message Queue #2 – Return the ODS/400 message queue #2 *NONE – ODS/400 is not configured for message queue in field number two.
ODLSYS	ODS Local System Name – Return the Local System Name *NONE – ODS/400 local system name is not configured.
ODRSYS	ODS Remote System Name – Return the Remote System Name *NONE – ODS/400 remote system name is not configured.
ODRLOC	ODS Remote Location Name – Return the Remote Location Name *NONE – ODS/400 remote location name is not configured.
ODRMODE	ODS Mode – Return the ODS/400 Mode *NONE – ODS/400 mode is not configured.
ODRIPAD	ODS Remote IP Address or DNS name – Return the remote IP address or DNS name. *NONE – Remote IP address or DNS name is not configured.
ODRCPRT	C – CPIC O – OptiConnect I – TCP/IP *NONE – Communication protocol is not configured.

ODLROL	SOURCE – Local system is a source system and is role swap capable. TARGET – Local system is a target system and is role swap capable. *NONE – Local system is not configured for a role. System is not role swap capable.
ODLSTS	NORMAL – Local system is in normal status and is role swap capable. REVERSED – Local system is in reversed status and is role swap capable. *NONE – Local system is not configured for a status. System is not role swap capable.

RTVODSSTS (Retrieve ODS/400 Status)

Retrieves ODS/400 status information and returns it to the calling program. This command is only for use in a CL program. For example, to retrieve the job information for the ODS/400 reader job, specify the following command syntax in a CL program.

```
RTVODSSTS QAUDJRN(&odsrdr)
```

Required Parameters

Parameter	Description
QAUDJRN	Job Information: 1-10 – *INACTIVE or ACTIVE 11-20 – Job Name 21-30 – Job User 31-40 – Job Number
ODS_FILTER	Job Information: 1-10 = *INACTIVE or ACTIVE 11-20 = Job Name 21-30 = Job User 31-40 = Job Number
ODS_EXCEPT	Job Information: 1-10 = *INACTIVE or ACTIVE 11-20 = Job Name 21-30 = Job User 31-40 = Job Number
ODS_POLLER	Job Information: 1-10 = *INACTIVE or ACTIVE 11-20 = Job Name 21-30 = Job User 31-40 = Job Number
INT_ODSOMS	Job Information: 1-10 = *INACTIVE or ACTIVE 11-20 = Job Name 21-30 = Job User 31-40 = Job Number
ODS_SEND01	Job Information: 1-10 = *INACTIVE or ACTIVE 11-20 = Job Name 21-30 = Job User 31-40 = Job Number

ODSTSE	The number of error transactions found in file ODOTRNP with the status of E.
ODSTSS	The number of sending transactions found in file ODOTRNP with the status of S.
ODSTSP	The number of pending transactions found in file ODOTRNP with the status of P.
ODSTSW	The number of waiting transactions found in file ODOTRNP with the status of W.

RTVOMSINF (Retrieve OMS/400 Information)

Retrieves the specified OMS/400 configuration attributes, then determines if the OMS/400 configuration information is consistent for the selected link IDs. If the compared configuration attributes are consistent, the resulting parameter name value is returned. If the compared configuration attributes are not consistent, the resulting parameter is *INCONSISTENT. An inconsistent attribute means that at least one of the link IDs for the specified parameter does not match the role to other link IDs in the group.

This command is only for use in a CL program. For example, to retrieve and compare the OMS/400 role for all the link IDs requested, specify the following command syntax in a CL program.

```
RTVOMSINF TYPE(*LNK) LNKID(*ALL) ROLE(&ROLE)
```

The parameter role returns SOURCE, TARGET, or *INCONSISTENT.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.

Return Values

Parameter	Description
ROLE	SOURCE – All link IDs for the specified role are all configured as a source system. TARGET – All link IDs for the specified role are all configured as a target system. *INCONSISTENT – At least one of the link IDs for the specified role does not match the role to other link IDs in the group.

STATUS	"blank value" – All link IDs for the specified status are configured for the normal status. R – All link IDs for the specified status are configured for the reverse status. *INCONSISTENT – This is a valid status only when the RTVOMSINF command is run for *ENV (the environment). This value is returned only when the ARS environment has more than 1 link and there is an inconsistency between the links in their status or configuration.
PWD	OMS/400 Password – Returns the OMS/400 password. *INCONSISTENT – At least one of the link IDs for the specified password does not match the password to other link IDs in the group.
RMTSYS	OMS/400 Remote System Name – Returns the OMS/400 remote system name. *INCONSISTENT – At least one of the link IDs for the specified remote system does not match the remote system to other link IDs in the group.
SNDTYP	C=CPIC O=OptiConnect I=TCP/IP *INCONSISTENT – At least one of the link IDs for the specified send type does not match the send type to other link IDs in the group.
RMTLOC	Remote Location – Returns the remote location. *INCONSISTENT – At least one of the link IDs for the specified remote location does not match the send type to other link IDs in the group.
MODE	OMS/400 Mode – Return the OMS/400 mode. *INCONSISTENT – At least one of the link IDs for the specified mode does not match the mode to other link IDs in the group.
RMTIP	OMS/400 Remote IP address or DNS name – Returns the OMS/400 remote IP address or DNS name *INCONSISTENT – At least one of the link IDs for the specified remote IP address or DNS name does not match the remote IP address or DNS name to other link IDs in the group.

RTVOMSPWD (Retrieve OMS/400 Password)

Retrieves the OMS/400 password for the specified link ID. This command is only for use in a CL program. For example, to retrieve the password for an OMS/400 link ID, specify the following command syntax in a CL program.

```
RTVOMSPWD LNKID(link ID name) OMSPWD(&omspwd)
```

The parameter OMSPWD returns the OMS/400 password for the specified link ID.

Required Parameters

Parameter	Description
LNKID	The link ID on which an OMS/400 password is returned.

Return Values

Check Status	Description
OMSPWD	OMS/400 link ID password.

SBMODSSYNC (Submit ODS/400 Synch Check)

Submits a complete ODS/400 synch check as a single job or submits multiple ODS/400 synch check jobs for each library or path defined to ODS.

Required Parameters

Parameter	Description
SBMMLTJOB	*YES – Creates a file ODSPATH in QTEMP and executes a SQL statement to select distinct records in ODOBJSP. Then submit a ODS/400 synch check for each distinct library and/or IFS path to the ODS400 subsystem. Caution: Using this option can submit many ODS/400 synch check jobs and can affect system performance. *NO – Submits only one ODS/400 synch check job to the ODS400 subsystem. All libraries and/or IFS paths defined to ODS400 will be checked.

SBMOMSSYNC (Submit OMS/400 Synch Check)

Submits an OMS/400 sample synch check for each link ID selected or submits a synch check error job for all of OMS. This can be done for either the QSYS or IFS files systems.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.
SYNCHKTYPE	*SAMPLE – Submits an OMS/400 synch check for each link ID. The job name will be the same as the link ID plus the character "QSYS' or "_IFS" in the OMS400 subsystem. Parameter OBJTYPE and INZMRSERRP will be displayed. *ERROR – Submit an OMS/400 synch check error for each link ID. The job name will be SYNCHKERR in the OMS400 subsystem.
OBJTYPE	QSYS – Physical files, data areas, and data queues will be synch checked. The job name will be the first six characters of the link ID plus "QSYS". IFS – IFS directories and stream files will be synch checked. The job name will be the first six characters of the link ID plus "_IFS". *BOTH – A job for QSYS and IFS objects will be submitted.
INZMRSERRP	*YES – Deletes all records in the MRSERRP file. The file contains the allocation errors for a previous synch check could not obtain a *SHRNUP lock for the object. *NO – Does not delete records in the MRSERRP file.

SBMSYNCHK (Submit Synch Check)

Integrates the running of both the OMS/400 and ODS/400 synch check processes into a single command. For OMS, this submits either an OMS/400 sample synch check for each selected link ID or a synch error job for all of OMS/400 for either the QSYS or IFS files systems. For ODS, this submits either a complete ODS/400 Syncheck as a single job or multiple ODS/400 Syncheck jobs one for each library or path defined to ODS.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.
ENDS3	*YES – End the auto synch check job. *NO – Does not end the auto synch check job.
SYNCHKTYPE	*SAMPLE – Submits an OMS/400 synch check for each link ID. All records in file MRSERRP will be deleted. *ERROR – Submits an OMS/400 synch check error for each link ID. The job name will be SYNCHKERR in the OMS400 subsystem. *NONE – OMS/400 synch check will not be submitted.
ODSSYNCHK	*YES – ODS/400 synch check job will be submitted. The SBMMLTJOB parameter will be displayed. *NO – ODS/400 synch check job will not be submitted.
SBMMLTJOB	*YES – Creates a file ODSPATH in QTEMP and executes a SQL statement to select distinct records in ODOBJSP. Submit a ODS/400 synch check for each distinct library to the ODS400 subsystem. Caution: Using this option can submit many ODS/400 synch check jobs and could affect system performance. *NO – Submits only one ODS/400 synch check job to the ODS400 subsystem. All libraries defined to ODS400 will be checked.

SETARSLIB (Set ARS Library)

Run this command to set the contents of the QGPL/ARSLIB data area. Finally, manually create the new library and move all objects to the new library.

Required Parameter

Parameter	Description
ARSLIB	The library name in which to store the objects.

SNDJRNU70 (Send Journal U70)

Sends a U70 journal entry to the local journal associated with the link ID. The U70 is used to mark all the router and apply jobs current if no applications transactions are deposited into the journal.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.

SNDLNKDFN (Send Link Definitions)

Uses the OMS400 command OMSOBJINZ to send link definitions. Prior to executing OMSOBJINZ, OMS/400 on the target system ends for the selected link ID. The command checks for the inactive status for all OMS/400 jobs on the target system. Finally, it executes OMSOBJINZ SNDDEF(*YES) and restart OMS/400 on the target system.

Required Parameter

Parameter	Description
LNKID	Link ID-name – A valid link ID.

SNDODSCFG (Send ODS/400 Configuration)

Sends the ODS/400 configuration files. The program writes a control record to the file MRRCFGP for each file to be copied. Then the command calls the same program (ODC820) as the RMTCFGUPD job to send across the configuration files. The following files are sent to the target system via FTP or DDM: ODOBJSP, ODPMSTP, and ODPTIMP. If the data area value for VSIUSEFTP is Y, then FTP. If the value is N, then DDM.

Required Parameters

None

SNDPLMCFG (Send PLM Configuration)

Sends the PLM configuration files. The program writes a control record to file MRRCFGP for each file to be copied. Then the command calls the same program (MRR484) as the RMTCFGUPD job to send the PLM files to the target. The following files are sent to the target system via FTP or DDM: MRLMONP and MREXCLP. If the data area value for VSIUSEFTP is Y, then FTP. If the value is N, then DDM.

Required Parameters

None

STRMQRCDI (Start MQ Record Object Image)

Executes the VSIRCDMQM for all *JRN link IDs. For MQ Series message queues and related objects, the VSIRCDMQM executes a record media image for all MQ/400 objects.

OMS/400 Journal Manager tracks the receivers that must be retained in order to recover MQ/400 objects from a media image. No receivers are deleted that include the recovery media image or that are generated subsequently, until the command is executed again, which establishes a new recovery checkpoint.

Required Parameters

None

STRUSRAPPS (Start User Applications)

Retrieves the user exit program that starts subsystems, jobs, and communication for the specified role. The exit program name and library is stored in the STREXTCFG data area. Use the command CHGEXTCFG to configure the exit program name and library.

Required Parameters

Parameter	Description
ROLE	SOURCE – Starts the required subsystems, jobs, and communication for the current source system. TARGET – Starts the required subsystems, jobs, and communication for the current target system.
PASSWORD	Password Value – The value of the ARSLIB data area.
BATCH	*YES – Submits job STRUSRAPPS to the specified job queue. The parameter JOBQ is displayed for input. This is the default. *NO – Executes the program interactively.
JOBQ	*LIBL/QCTL – If the BATCH parameter is *YES, the JOBQ parameter is displayed for input. Job queue Library/Name – The job STRUSRAPPS will be active in the subsystem that is associated with job queue specified.
USREXTPARM	*EXTCFG – The value stored in the ENDEXTCFG in position 51-1024 will be passed to the user exit program. User Exit Parameter – A character string up to 1024 bytes. The character string will be passed to the user exit program.

STRVSICHK (Start VSI Check)

Used for the pre-role swap and role swap check processes. It executes a series of commands from the STRVSICHK command interface. All of the commands in this process are documented in this manual. See "Performing a Role Swap" on page 25 for more information.

Required Parameters

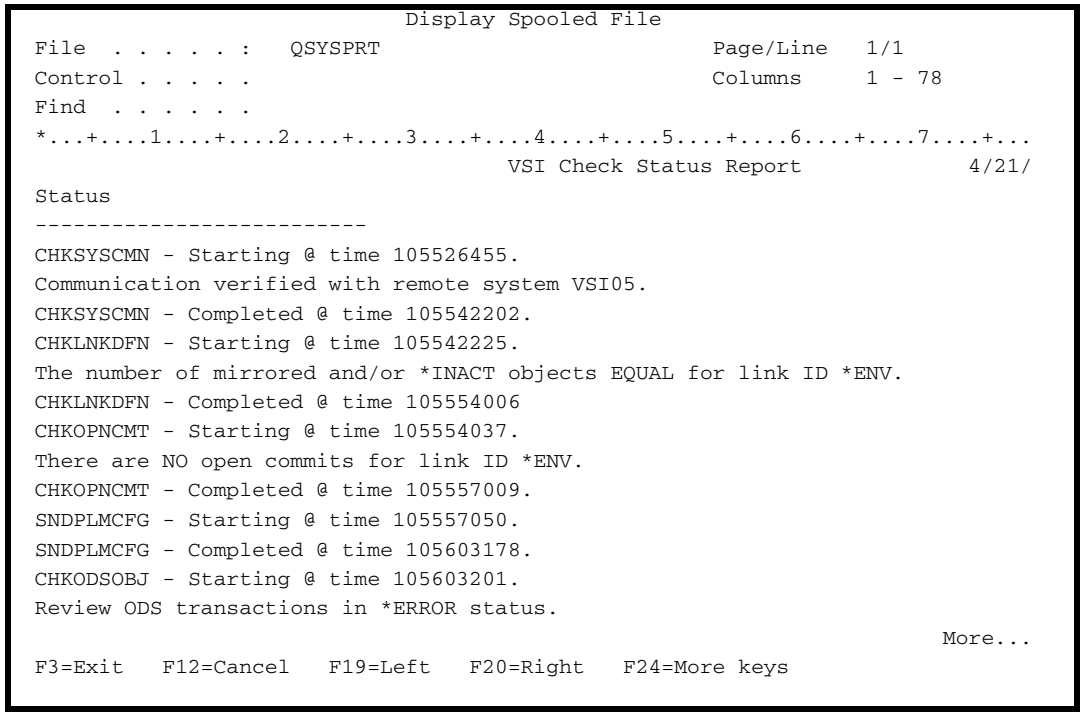
Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.
CHKSYSCMN	*YES – Executes the CHKSYSMN command. *NO – Does not execute the command. See page 79 for more information.
CHKLNKDFN	*YES – Executes the CHKLNKDFN command. *NO – Does not execute the command. See page 70 for more information.
CHKOPNCMT	*YES – Executes the CHKOPNCMT command. *NO – Does not execute the command. See page 77 for more information.
VFYJRNSTS	*YES – Executes the VFYJRNSTS command on the target system. *NO – Does not execute the command. See page 110 for more information.
BLDOMSTRG	*YES – Executes the BLDOMSTRG command. *NO – Does not execute the command. See page 64 for more information.
ENDS3	*YES – Executes the ENDS3 command. *NO – Does not execute the command. See page 80 for more information.

SYNCHKTYPE	*SAMPLE – Submits OMS/400 sample synch check. Executes the SBMOMSSYNC command. *ERROR – Submits OMS/400 synch check error, Execute the SBMOMSSYNC command. *NONE: – Does not execute the SBMOMSSYNC command.
SBMODSSYNC	*YES – Executes the SBMODSSYNC command. *NO – Does not execute the command. See page 93 for more information.
STRMQRCDI	*YES – Executes the STRMQRCDI command. *NO – Does not execute the command. See page 101 for more information.
SNDPLMCFG	*YES – Executes the SNDPLMCFG command. *NO – Does not execute the command. See page 100 for more information.
SNDODSCFG	*YES – Executes the SNDODSCFG command. *NO – Does not execute the command. See page 99 for more information.
CHKODSERR	*YES – Executes the CHKODSOBJ command and specifies *ERROR. *NO – Does not execute the command.
CHKODSPRC	*YES – Executes the CHKODSOBJ command and specifies *PROCESS. *NO – Does not execute the command.
CHKOMSOBJ	*YES – Executes the CHKOMSOBJ command. *NO – Does not execute the command. See page 75 for more information.
SNDJRNU70	*YES – Executes the SNDJRNU70 command. *NO – Does not execute the command. See page 97 for more information.
CHKJRNSEQ	*YES – Executes the CHKJRNSEQ command. *NO – Does not execute the command. See page 68 for more information.

Sample Report

The screen below shows the final status for each task that was selected to be processed. Each task has a keyword name and a Starting and Completed message. If the user was prompted with a display or a spool file was created, a message indicates to review the following display or refer to a spool file. If an

error occurred within the task, a message states “Program Error. Review Job log.” In both cases, press ENTER to return to the Pre-Role Swap menu.


Display Spooled File
File . . . . . : QSYSPRT Page/Line 1/1
Control . . . . . Columns 1 - 78
Find . . . . . .
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....+...
VSI Check Status Report 4/21/
Status
CHKSYSCMN - Starting @ time 105526455.
Communication verified with remote system VSI05.
CHKSYSCMN - Completed @ time 105542202.
CHKLNKDFN - Starting @ time 105542225.
The number of mirrored and/or *INACT objects EQUAL for link ID *ENV.
CHKLNKDFN - Completed @ time 105554006
CHKOPNCMT - Starting @ time 105554037.
There are NO open commits for link ID *ENV.
CHKOPNCMT - Completed @ time 105557009.
SNDPLMCFG - Starting @ time 105557050.
SNDPLMCFG - Completed @ time 105603178.
CHKODSOBJ - Starting @ time 105603201.
Review ODS transactions in *ERROR status.
More...
F3=Exit F12=Cancel F19=Left F20=Right F24=More keys

SWAPODS (Swap ODS/400)

Starts the ODS/400 role swap. This allows the command to be either submitted to batch via a specified job queue or run interactively.

Required Parameters

Parameter	Description
ROLOPT	*INTERACT – Prompts the user with ODS/400 change role prompt. The parameters are specified and are not input capable. *BCHIMMED – Submits the ODS/400 change role job to the OMS400 subsystem. The job retrieves the information messages from the change role process. If the message ODE0420 "Active jobs found…" is received, then the ODSCHGROLE job is delayed 30 seconds before retrying. If the message ODE0428 "ODSCHGROLE ended with Errors…" is received, a user message is sent to retry or cancel. If the message ODE0429 "ODSCHGROLE completed successfully…" is received, SWAPODS sends a message to the ODS400 message queue indicating that "SWAPODS received the successful completion message from ODSCHGROLE."
JOBQ	*LIBL/QCTL Job queue Library/Name – If parameter ROLOPT is set to *BCHIMMED, the job ODSCHGROLE is active in the subsystem that is associated with the job queue specified.

SWAPOMS (Swap OMS/400)

Starts the OMS/400 role swap. This allows the command to be either submitted to batch via a specified job queue or run interactively.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 are processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.
ROLOPT	*BCHIMMED – Submits the OMS/400 change role to the OMS400 subsystem. Job name is the same as the link ID plus the character string "_SWP". If inactive objects are found, then a user message will be sent to retry, ignore or cancel the OMS/400 change role for the link ID being processed.
JOBQ	If the parameter ROLOPT is set to *BCHIMMED, the job OMSCHGROLE will be active in the subsystem that is associated with job queue specified.

VFYENV (Verify Environment)

Verifies that the specified environment name exists in the file ENVMSTP.

Required Parameters

Parameter	Description
ENV	Verifies the specified environment.

Return Values

Is ENV Configured	Description
YESORNO	*YES – Environment is configured. *NO – Environment is not configured.

VFYENVCFG (Verify Environment Configuration)

Verifies that the specified environment and link ID name exists in file ENVCFGP. If a record exists, the link ID is associated with the environment.

Required Parameters

Parameter	Description
ENV	Verifies the environment name specified.
LNKID	Verifies the link ID is associated to the environment name specified above.

Return Values

Is LNKID config to ENV	Description
YESORNO	*YES – Link ID is configured to the specified environment. *NO – Link ID is not configured to the specified environment.

VFYJRNSTS (Verify Journal Status)

Submits the VFYJRNSTS job to the OMS400 subsystem. The job calls the OMS/400 product programs to create a list of journaled objects and identify the status for each object to the link ID. For the source system, if an object is not journaled, journaling is started if no allocation issues exist. For the target system, OMS/400 is ended and the program determines if the object is journaled to the correct journal. If an object is not journaled, journaling is started to the correct journal. If the object is journaled to the incorrect journal, journaling is ended and restarted to the correct journal. Currently, if an error occurs, a message is sent to the QSYSOPR message queue.

Required Parameters

Parameter	Description
TYPE	*LNK – Processes one link or *ALL links configured to OMS/400 and displays the LNKID. *ENV – Processes all links configured to an environment and displays the ENV parameter.
LNKID	Link ID-name – The link ID to be processed. *ALL – All link IDs configured to OMS/400 will be processed.
ENV	Environment name – Selects the link IDs to process based on the specified environment name. *CURENV – Retrieves the environment name from the CURENV data area. The environment name will be used to select link IDs to be processed.

VFYLNKID (Verify Link ID)

Verifies that the specified link ID exists in file MRMMSTP.

Required Parameters

Parameter	Description
LNKID	Specifies an OMS/400 link ID.

Return Values

Is LNKID Configured to OMS	Description
YESORNO	*YES – Link ID is configured to OMS. *NO – Link ID is not configured to OMS.

VFYSYSATR (Verify System Attributes)

Prompts the user with displays of the current system attributes. Use this command to display the system attributes stored in the configuration file LSTSYSATRP. (For example, prompt WRKSBS display, prompt the TCP/IP Interface display, or prompt the Network Attributes display.) This command provides quick access to areas of the system changed before and after a role swap.

Required Parameters

None

WRKENVCFG (Work Environment Configuration)

Displays the Environment configuration screen. The environment configuration provides the option to group OMS/400 link IDs to be processed during the pre-role swap, the actual role swap, or for general maintenance. This configuration option is beneficial for mirroring environments that have the need to process a subset of configured OMS/400 link IDs.

NOTE

The maximum number of environments that can be created is 9,999. Only use this command on the source system and ensure the objects are included in the mirroring configuration. It is very important to ensure the file ENVMSTP, ENVCFGP, and data area CURENV are mirrored via OMS.

Required Parameters

None

WRKVSIJOB (Work VSI Job)

Displays the WRKACTJOB screen with subsystems OMS400, ODS400, and VSIGPL subsystem and jobs.

Required Parameters

None